



# United Nations Development Programme

# Government of Türkiye

# Terminal Evaluation of UNDP/GEF Project: *Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Turkey (ORKÖY-PV Project)*

(GEF ID number 5732, UNDP PIMS ID: 5323)

## Final Report

***Mission Members:***
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**23 February 2023**

## ACKNOWLEDGEMENTS

The Evaluator wishes to acknowledge with gratitude the time and effort expended by all project participants and stakeholders during the course of the ORKÖY-PV Project Terminal Evaluation. In particular, we wish to thank the UNDP Turkey, the Ministry of Agriculture and Forestry, the General Directorate of Forestry, ORKÖY, EMRA, Project consultants and beneficiaries for their time and effort to recall details of their time during the Project. I sincerely hope that this report contributes to an accelerated transition of a low carbon future with solar PV deployments for forest villagers in Turkey.

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# EXECUTIVE SUMMARY

E-1. This Termination Evaluation (TE) report assesses the design and formulation, implementation, results (at goal, objective, outcome, outputs levels), targets (against the indicators in the July 2019 MTR Project Result Framework, hereinafter referred to as the PRF), GEF additionality, catalytic effect, and progress to impact of the "Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Türkiye" Project (hereinafter referred to as the ORKÖY-PV Project, the ORKÖY Project or the Project). It also evaluates the Project's relevance, effectiveness, efficiency, sustainability, country ownership, gender equality, and cross cutting issues.

E-2. The Project received the CEO endorsement on 17 December 2015. The Project inception workshop was held on 24 November 2016 and the Project implementation commenced in December 2016. The Project applied for a 12-month no-cost extension in 2020, which was granted by the GEF. The end date of the Project was extended on 31 January 2020 for 24 months, and then another extension on 6 July 2022 for another for 6 months to the current terminal date of the Project of 28 February 2023.

E-3. The duration of the TE assessment is from the Project's inception in August 2016 until December 2022, while also providing estimations on the emission reduction results by the End of the Project (EOP). The TE and this report follow the *Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects*, copyrighted by UNDP in 2020

## Project Description

E-4. The ORKÖY-PV Project was designed to overcome barriers to solar PV installations in forest villages in Türkiye:

- the approval process for installations for renewable energy technologies which is long, arduous and protracted;
- poor remuneration and tenure pricing levels that serve as dis-incentives for development of local renewable energy generation, especially considering the FiT relative to import electricity prices;
- prohibitive costs to community generation schemes that include costs for the connections to transmission lines and distribution companies, and re-importing electricity at higher costs to the benefit of utility companies, thus substantially reducing the net-benefit to the community;
- complex and highly bureaucratic administrative processes;
- lack of functional solar PV demonstration installations in forest villages that could convince residents to invest in renewable energy technologies.

E-5. The objective of the ORKÖY-PV Project was to "support the successful launching of a sustainable energy financing mechanism within the ORKÖY credit mechanism to ensure that there is at least 30 MW of installed capacity of grid-connected, cooperative solar PV in forest villages by the end of the project". The Project was designed to do this by:

- Component 1: Developing and expanding the policy and institutional framework to promote on-grid, residential solar PV;

- Component 2: Demonstrating the technical and economic viability as well as the business model of the ORKÖY sustainable energy financing mechanism for solar PV systems through 4 pilot installations; and
- Component 3: Scaling up and replication at the national level.

E-6. EOP results expected from the Project were:

- enhanced enabling policy and environment, within which ORKÖY's sustainable energy financing mechanism continues to operate beyond the lifetime of the project;
- the SEFM of ORKÖY successfully finances four solar PV demonstration projects (each up to 100 kW in total) are setup in forest villages, using either individual household and/or cooperative models;
- the SEFM successfully provides soft loans to contribute to the deployment of at least 30 MW of solar PV during project lifetime; and
- the SEFM has in place systems for M&E, quality standards, and certification systems and training programmes.

## Project Summary Table

| | | | | |
|---|---|---|---|---|
| **Project Title:** | *Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Türkiye (ORKÖY-PV Project)* | | | |
| **UNSDCF Outcome and CPD Output:** | *UNSDCF Outcome 3.1: By 2025, all relevant actors take measures to accelerate climate action, to promote responsible production and consumption, to improve the management of risks and threats to people, to ensure sustainable management of the environment and natural resources in urban and ecosystem hinterlands.*<br>*CPD Output 3.3: Solutions developed, financed and applied at scale for energy efficiency and transformation to clean energy and low-carbon development* | | | |
| **SDGs served** | *SDG 7, to ensure access to affordable, reliable, sustainable and modern energy for all,*<br>*SDG 13, to take urgent action to combat climate change and its impacts, SDG 1, to end poverty in all its forms everywhere, and*<br>*SDG 15, to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.* | | | |
| GEF Project ID: | 5732 | | *at endorsement (Million US$)* | *at the time of evaluation (Million US$)* |
| UNDP Project ID: | 5323 | GEF financing: | 3.780 | 3.616 |
| Country: | Türkiye | IA/EA own: | 0.200 | 0.180 |
| Region: | Europe and CIS | Government: | 47.675 | 4.944 |
| Focal Area: | Climate Change | Other: | 4.625 | 4.625 |
| FA Objectives, (OP/SP): | FA Objective #3 for GEF 5: Promoting investment in renewable energy technologies<br>Climate Change Objective 3 (for GEF-6): "To promote investment in renewable energy technologies" | Total co-financing: | 52.500 | 9.749 |
| Implementing Partner: | Ministry of Agriculture and Forestry (MoAF) | Total Project Cost: | 56.280 | 13.365 |
| Other Partners involved: | N/A | ProDoc Signature (date project began): | | 23 August 2016 |
| | | (Operational) Closing Date: | Proposed: 28 February 2023 | Actual: 28 February 2023 |

## Project Results

E-7. Actual outcomes of the ORKÖY-PV Project are summarized on Table A in comparison with intended outcomes.

**Table A: Comparison of Intended Project Outcomes from the ProDoc to Actual Outcomes**

| Intended Outcomes in Project Results Framework of July 2019 (see Appendix F) | Actual Outcomes as of December 2022 |
|---|---|
| **Objective:** *To support the successful launching of a sustainable energy financing mechanism within the ORKÖY credit mechanism to ensure that there is at least 30 MW of installed capacity of grid-connected, residential solar PV in forest villages in Türkiye* | **Actual achievement toward objective**: The Project fell short of its GHG emissions reduction target of 28,750 $tCO_{2eq}$, reaching only 1,886 $tCO_{2eq}$ as of 31 December 2022 . However, there has been substantial investments by GDF to install 1,236 pilot rooftop solar PV in forest villages with installed capacity of 2.84 MW and continued support by GDF via their ORKÖY Sustainable Energy Financing Mechanism (SEFM) after the EOP (Para **Error! Reference source not found.**). |
| **Intended Outcome 1.1**: Enhanced enabling policy and environment, within which ORKÖY's sustainable energy financing mechanism continues to operate beyond the lifetime of the project | **Actual Outcome 1.1**: An enabling environment with appropriate policies and institutional frameworks has been setup for supporting a sustainable energy financing mechanism for solar power in forest villages including:<br>• new National Framework legislation in May 2019 on renewable energy encouraging small-scale rooftop solar PV systems based on net metering principles;<br>• establishment of an ORKÖY-PV Unit under the ORKÖY Department of General Directorate of Forestry to provide GDF funds to forest villagers for roof-top PV installations (Paras 74-79). |
| **Intended Outcome 2.1**: Sustainable Energy Financing Mechanism of ORKÖY successfully finances four Solar PV demonstration projects (each up to 100 kW in total) are setup in forest villages, using either individual household and/or cooperative models | **Actual Outcome 2.1**: The deployment of solar PV for the pilot phase included:<br>• 238 kWp of land-based solar PV in 2 villages;<br>• 408 kWp of roof-top solar PV in 27 villages in 18 provinces for 255 households (Paras 80-86). |
| **Intended Outcome 3.1**: Sustainable Energy Financing Mechanism of ORKÖY successfully provides soft loans to contribute to the deployment of at least 30MW of solar PV during project lifetime | **Actual Outcome 3.1:** SEFM finance phase of the Project consisted of 1,235 households in 129 villages with installed capacity of over 2,841 kWp in December 2022 with US$2.294 million from the ORKÖY's budget (Paras 88-94). |
| **Intended Outcome 3.2**: Sustainable Energy Financing Mechanism of ORKÖY has in place systems for M&E, quality standards, and certification systems and training programmes | **Actual Outcome 3.2:** Quality standards, certification systems and MRV systems are being used for the forest village solar PV system installations but not yet institutionalized (Paras 98-99) |

## Findings and Conclusions

E-8. Despite the Project facing significant challenges from 2016 to mid-2019 (turbulent political periods), and from 2020 to 2022 (COVID-19 pandemic related as well as an economic crisis, inflation, exchange rate fluctuation in 2021, increasing energy prices, and disruptions of supply chains), the

Project managed to achieve decent progress to successfully to setup and operationalize with GDF SEFM under the GDF-ORKÖY and to prepare a National Framework based on net metering for renewable energy for individual consumers to produce renewable electricity based on their installed electric consumption capacity, favoring roof-top PV installations and a continuation of financing solar PV installations for the most vulnerable segments of the population (Paras 126-129).

E-9. The ORKÖY-PV Project can be considered a success even if objective-level targets were not achieved; the Project has removed barriers to solar PV installations in forest villages, augmenting a deployment model and securing a financial commitment from GDF towards solar PV for forest villagers after the EOP. With the Project managing a shift toward small-scale renewable energy solutions in rural communities, the process for application to ORKÖY SEFM was made easier (Para 130). The most important achievement is the willingness and keenness of GDF's top management to continue to finance solar-PV for forest villagers with ORKÖY credit. ORKÖY does not favor any gender or any disadvantaged group with every applicant having an equal chance during ORKÖY lotteries. With the geographic spread of the Project across Türkiye, there is an added importance to prioritize women during awareness raising and training activities of solar PV activities for forest villagers (Para 131).

## Evaluation Ratings[1]

| 1. Monitoring and Evaluation | *Rating* | 2. IA & EA Execution | *Rating* |
|---|---|---|---|
| M&E design at entry | 5 | Quality of Implementation Agency - UNDP | 5 |
| M&E Plan Implementation | 5 | Quality of Execution - Executing Entity (ORKÖY) | 5 |
| Overall quality of M&E | 5 | Overall quality of Implementation / Execution | 5 |
| **3. Assessment of Outcomes** | **Rating** | **4. Sustainability[2]** | **Rating** |
| Relevance[3] | 2 | Financial resources | 3 |
| Effectiveness | 5 | Socio-political | 3 |
| Efficiency | 4 | Institutional framework and governance | 3 |
| Overall Project Outcome Rating | 5 | Environmental | 3 |
| | | Overall likelihood of sustainability | 3 |

## Recommendations and Lessons Learned

E-10. *Recommendation 1 (to UNDP and GDF): Present the options and opportunities for partnership with the IFIs as part of the exit strategy discussions with Project stakeholders to bring the lower costs of financing for the villagers (Para 132).*

[1] Evaluation rating indices (except sustainability – see Footnote 2, and relevance – see Footnote 3): 6=*Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives; 5=*Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives; 4=*Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives; 3=*Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives; 2=*Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives; 1=*Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

[2] Sustainability Dimension Indices: *4 = Likely (L):* negligible risks to sustainability; *3 = Moderately Likely (ML):* moderate risks to sustainability; *2 = Moderately Unlikely (MU):* significant risks to sustainability; and *1 = Unlikely (U):* severe risks to sustainability. *Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions.*

[3] Relevance is evaluated as follows: 2 = Relevant (R); 1 = Not relevant (NR)

E-11. *Recommendation 2 (to GDF and UNDP): Initiate discussions with relevant stakeholders with regards to regulations to expand unlicensed solar PV and other forms of renewable energy to other applications (Para 133).*

E-12. *Recommendation 3 (to GDF and UNDP): Setup systems for forest villagers to manage their solar PV wastes with a licensed Waste from Electrical and Electronic Equipment (WEEE) treatment facility that accepts the defined waste using international best practices (Para 134).*

E-13. *Recommendation 4 (to UNDP and GDF): For future projects, employ a Project gender specialist who will ensure the continuous monitoring of gender indicators (Para 135).*

E-14. *Lesson learned #1: Direct interaction is the preferred means of communication among agri-communities rather than online web-tools or educational modules (Para 136).*

E-15. *Lesson learned #2: Pilot solar PV implementation provided a good basis for co-financed solar PV implementation (Para 137).*

E-16. *Lesson learned #3: The recruitment of an umbrella organization for solar PV, GUNDER, was key to making the process for solar PV installations for forest villagers efficient (Para 138).*

E-17. *Lesson learned #4: Robust communication activities between all stakeholders was a key to success of the Project (Para 139).*

E-18. *Lesson learned #5: The absence of a gender position on the Project did not advance gender mainstreaming (Para 140).*

# ABBREVIATIONS

| Acronym | Meaning |
|---|---|
| APR-PIR | Annual Project Report - Project Implementation Review |
| AWP | Annual Work Plan |
| CO | UNDP Country Office |
| $CO_2$ | Carbon Dioxide |
| CPAP | Country Programme Action Plan |
| CPD | UNDP Country Program Document |
| EIGM | General Directorate of Renewable Energy |
| EMRA | Energy Market Regulation Agency ( |
| EPDK | Energy Market Regulation Authority |
| EOP | End of project |
| ESMP | Environmental and Social Management Plan |
| EU | European Union |
| FiT | Feed in Tariff |
| FY | Fiscal Year |
| GDF | General Directorate of Forests under MoAF |
| GDP | Gross Domestic Product |
| GEF | Global Environment Facility |
| GHG | Green House gas |
| GoT | Government of Türkiye |
| IFI | International Financial Institute |
| INDC | Intended Nationally Determined Contribution |
| IT | Information Technology |
| kWh | kilowatt hour |
| M&E | Monitoring and Evaluation |
| MoAF | Ministry of Agriculture and Forestry |
| MoENR | Ministry of Energy and Natural Resources |
| MoEUCC | Ministry of Environment, Urbanization and Climate Change |
| MoF | Ministry of Finance |
| MRV | Monitoring, reporting, and verification |
| MTR | Midterm review |
| NARP | The National Awareness Raising programme |
| NGO | Non-governmental organization |
| OGM | General Directorate of Forestry |
| ORBİS | Forest Management System |
| ORKÖY | Forest Village Relations department |
| ORKÖY-PV | "Sustainable Energy Financing Mechanism for Solar Photovoltaic Systems in Forest Villages in Türkiye" Project |
| OR-KOOP | Central Union of Turkish Forest Cooperatives |
| PA | The Paris Agreement |
| PIMS | UNDP/GEF Project Information Management System |
| PIR | Project implementation report |
| PIU | Project implementation unit |
| PM | Project manager |
| PPG | Project Preparatory Grant (GEF) |
| PRF | Project Results Framework |
| PSC | Project Steering Committee |
| PV | Photovoltaic |
| RCE | Request for CEO Endorsement |

| Acronym | Meaning |
|---|---|
| ROHS | Restriction of Hazardous Substances |
| SDG | Sustainable Development Goal |
| SEAL | UNDP's commitment in protecting and advancing women's rights and gender equality |
| SEFM | Sustainable Energy Financing Mechanism |
| SES | Social and Environmental Screening |
| SESP | UNDP Social and Environmental Screening Procedure |
| SMART | Specific, Measurable, Attainable, Relevant, Time-bound |
| SWH | Solar water heater |
| $tCO_2$ | Tonne of Carbon Dioxide |
| TE | Terminal Evaluation |
| TEDAS | Türkiye Electricity Distribution Company |
| TEIAS | Türkiye Electricity Transmission Company |
| TL | Turkish Lira |
| ToC | Theory of Change |
| ToR | Terms of Reference |
| UN | United Nations |
| UNDAF | UN Development Assistance Framework |
| UNDP | United Nations Development Programme |
| UNEG | United Nations Evaluation Group |
| UNFCCC | UN Framework Convention on Climate Change |
| UNSDCF | United Nations Sustainable Development Cooperation Framework |
| WEEE | Waste from Electrical and Electronic Equipment |

# 1. INTRODUCTION

1. This report summarizes the findings, analyses and recommendations of the Terminal Evaluation Mission conducted during the 6 September to 16 December 2022 period for the UNDP-supported GEF-financed Project entitled: "**Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Türkiye**" (hereby referred to as the ORKÖY-PV Project or the Project) that received a US$3.78 million grant from the Global Environmental Facility (GEF). The Project objective was to "support the successful launching of a sustainable energy financing mechanism within the ORKÖY credit mechanism to ensure that there is at least 30 MW of installed capacity of grid-connected, residential solar PV in forest villages in Türkiye (approximately 2.5% or 175,000 people living in forest villages will have their electricity needs met by solar PV) by the end of the project". ORKÖY is the Forest Village Relations Department within the General Directorate of Forestry (GDF) under the Ministry of Agriculture and Forestry (MoAF).

## 1.1 Purpose of the Evaluation

2. This Terminal Evaluation (TE) for the ORKÖY-PV Project is to *evaluate the progress towards the attainment of global environmental objectives, project objectives and outcomes, capture lessons learned and suggest recommendations on major improvements.* The TE is to serve as an agent of change and play a critical role in supporting accountability. As such, the TE will serve to:

- measure to what extent the Project has contributed to solve the needs identified in the design phase;
- measure Project's degree of implementation, efficiency and quality delivered on expected results (outputs) and specific objectives (outcomes), against what was originally planned or officially revised;
- measure the project contribution to the objectives set in the UNDP Country Program Document (CPD), United Nations Sustainable Development Cooperation Framework (UNSDCF), Turkey's Intended Nationally Determined Contribution (INDC) submitted to UNFCCC, 11th National Development Plan of Turkey, Turkey's National Climate Change Strategy and Action Plan, Strategic Plan of Ministry of Energy and Natural Resources, National Rural Development Plan and Strategy, along with relevant SDGs;
- assess both negative and positive factors that have facilitated or hampered progress in achieving the Project outcomes, including external factors, weakness in design, management and resource allocation;
- assess the extent to which the application of the rights-based approach and gender mainstreaming are integrated within planning and implementation of the Project.
- generate substantive evidence-based knowledge by identifying best practices and lessons learned that could be useful to other development interventions at national (scale up) and international level (replicability) and to support the sustainability of the Project or some of its components promote accountability and transparency, and to assess and disclose levels of project accomplishments.

3. Outputs from this TE will provide an outlook and guidance in charting future directions on sustaining current efforts by UNDP, the Government of Türkiye, their donor partners, and the private sector, to sustain the momentum built by the Project to continue solar PV installations in forest villages and with the goal of reducing GHG emissions.

## 1.2 Scope

4. The scope of the TE for the ORKÖY-PV Project was to include all activities funded by GEF and activities from parallel co-financing. The Terms of Reference (ToRs) for the TE are contained in Appendix A. Key issues addressed on this TE include:

- the impact of a renewed focus on rooftop solar PV;
- the success in the use of GEF funds to supplement GDF grants;
- efforts to disseminate positive information on the demonstration solar PV on the programmes to use 100% GEF grant and the 50% grant (17% GDF + 33% GEF) to catalyze interest of other IFIs to finance rooftop solar PV installations in forest villages;
- the MRV system setup for the Project and its institutionalization.

5. Outputs from this TE will provide an outlook and guidance in charting future directions on sustaining current efforts by UNDP and the Government of Türkiye on strengthening the programme for solar PV installations in forest villages.

## 1.3 Approach and Methodology

6. The evaluation approach adopted was non-experimental evaluation[4] where the questions needed to be answered concerning policy and market for the sustainable financing mechanism to Project developers, and the benefits and impacts of solar PV to Project beneficiaries. Project developers were questioned on the change contributions on highly dynamic and complex market and policy systems. Beneficiary stakeholders were questioned in a participatory approach on their experiences applying for ORKÖY credit and the impacts of the programme that took into account the culture in marginalized forest communities.

7. The methodologies adopted for this evidence-based evaluation includes a combination of contribution analysis, and the culturally responsive evaluation methods of outcome evidencing[5]. Techniques of the TE methodology included:

- review of all relevant sources of Project information including documents prepared during the preparation phase. This includes the PIF, UNDP Initiation Plan, UNDP Social and Environmental Screening Procedure/SESP, APR/PIRs, meeting minutes of Project Board or multipartite meetings, MTR, Project budget revisions, lesson learned reports, national strategic and legal documents, and pertinent background information. A focus was provided on the results of the performance of Project sub-contracted activities and co-financed activities where measurement of the level of achievement of the indicators can be for the Project objective and outcomes;
- review of baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the RCE document and midterm stages and the terminal Core Indicators/Tracking Tools that were completed;
- a combination of in-depth interviews and focused groups discussions to provide qualitative and quantitative information that were semi-structured (see Para 10). This ensured a participatory and consultative approach for close stakeholder engagement with:

[4] From the UNEG Compendium of Evaluation Methods: http://www.unevaluation.org/document/detail/2939
[5] Ibid 4

  - key Project Team personnel including the current Project Managers, technical advisors, and Project developers;
  - government counterparts including the GEF Operational Focal Point, and Implementing Partners;
  - the UNDP Country Office and Regional Technical Advisor; and
  - direct beneficiaries who had solar PV installed on their roofs or on land, where focused group discussions took place;
- data and information review and analysis of data sources (i.e. interviews, focused group discussions and documents with relevant Project information). Triangulation of the various data sources ensured optimum validity and quality of the information and data received (see Paras 10-12);
- review of all information and data through a gender and human rights lens. This translated into the use of gender-responsive methodologies and tools to ensure that gender equality and women's empowerment, as well as other cross-cutting issues and SDGs were incorporated into the TE process (see Para 8). Detailed analysis on disaggregated data was undertaken as part of TE from which findings are consolidated to make recommendations and identify lessons learned for enhanced gender responsive and rights-based approach of the Project.

The Evaluation Mission for this TE was comprised of one lead International Evaluator. The approach, methodology and techniques of this TE were chosen given the limitations brought on by changes in the evaluation approach which resulted in the inability of the International Evaluator to travel to Türkiye and conduct field visits and face-to-face meetings (see Paras 15-16). A detailed listing of the Zoom meetings is shown in Appendix B. A full list of people interviewed, and documents reviewed are given in Appendix C and Appendix D respectively.

8. The gender-responsiveness of the methodology was implemented by obtaining information from monitoring reports, a 2018 UNDP-GEF report on "Social Economic Structure of Forest Villages" [6], and questioning interviewees about:

   - what have been the real changes in gender equality in the context of decision-making power, and division of labor;
   - how men and women were informed about the ORKÖY-PV Project (was it by newsletters or other media or by ORKÖY gatherings?);
   - how has the solar PV technology benefitted women beneficiaries in the household and as a work opportunity.

   Interview questions to the various stakeholders is provided in Appendix H.

9. The Project was evaluated for overall results in the context of:

   - *Relevance* - the extent to which the outcome is suited to local and national development priorities and organizational policies, including changes over time;
   - *Effectiveness* - the extent to which an objective was achieved or how likely it is to be achieved;
   - *Efficiency* - extent to which results were delivered with the least costly resources possible; and

[6] https://www.undp.org/turkiye/publications/socio-economic-structure-forest-villages

- *Sustainability* - the likely ability of an intervention to continue to deliver benefits for an extended period after completion;
- *Cross-cutting issues and gender equality and women's empowerment* - how the results contributed to gender equality and women's empowerment; and
- *Impact* – indications that the results have contributed to or enabled progress toward reduced environmental stress and improved ecological status.

The conclusions are drawn from the information from relevance, effectiveness, efficiency, sustainability, cross-cutting and impact ratings.

## 1.4 Data sources and analysis

10. Data and information for this TE was sourced from:

- a review of Project documentation as listed in Appendix C notably the final country reports from the UNDP Türkiye office. This was important in establishing information pertaining to the country's efforts in implementing the Project. This was done primarily at the Evaluator's home base;
- the combination of in-depth interviews and focused groups discussions (full list of persons interviewed in Appendix B) which were semi-structured interviews with key stakeholders within an interview schedule. These discussions were based on questions designed for different stakeholders based on evaluation questions around relevance, coherence, effectiveness, efficiency, and sustainability. Zoom interviews were conducted by the International Evaluator with:
  - key Project personnel on the Project Implementation Unit (PIU) concerning the general implementation of the Project;
  - government counterparts, technical advisors, and personnel from solar installation and distribution companies concerning issues with the application process of the GDF grant, and the sourcing, installation and maintenance of solar PV installations by the Project;
  - personnel with the UNDP Country Office and Regional Technical Advisor on Project strategic Project issues; and
  - representatives from the beneficiary communities on their experience in obtaining the GDF grant, on the actual solar PV installation, and on the changes solar PV has made to their way of life.

11. The information and data analysis were processed in the following manner:

- Firstly, the aforementioned semi-structured interviews with Project officers and the stakeholders involved in the Project (representatives of PIU, UNDP, GDF-ORKÖY[7], distribution companies, solar installation companies and Project beneficiaries) were used to complete fact-finding regarding the Terminal Evaluation;
- Secondly, collected data from desk research and the interviews was analyzed against the evaluation matrix. For example, cumulative amounts of reduced $CO_2$ emissions from the power sector, cumulative installed capacity of grid-connected PV system, and cumulative total electricity generation from installed grid-connected PV systems were all monitored and reported, reflecting the effectiveness of the Project. In addition, the Terminal Evaluation

[7] Otherwise known as the General Directorate of Forestry, Department of Forest and Village Relations or GDF-ORKÖY or ORKÖY

extracted relevant data from the PIRs on cumulative number of created job positions for forest villagers related to solar PV and the cumulative number of people living in forest villages who have had their electricity needs met by solar PV. The information collected was analyzed by the International Evaluator for the progress towards targets and GHG emission reductions;

- Thirdly, the information was triangulated between interviews with all stakeholders and Project documentation (mainly PIRs) leading to a full assessment of relevance, effectiveness, efficiency and sustainability with conclusions and recommendations.

## 1.5 Structure of the Evaluation

12. This evaluation report is presented as follows:

- An overview of Project activities from commencement of operations in 23 August 2016 to the present activities of the ORKÖY-PV Project;
- A review of all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, SESP), the Project Document, project reports including annual PIRs, Mid-Term Evaluation (MTR) report, and any other materials that the team considers useful for this evidence-based evaluation;
- An assessment of Project results on the basis of evaluation criteria (including relevance, effectiveness, efficiency, and sustainability criteria) using evidence from the participatory and consultative approach with all stakeholders; and
- Drawing up of conclusions, recommendations, and lessons learned.

13. This evaluation report is designed to meet GEF's "Guidelines for Conducting Terminal Evaluations of UNDP-Supported, GEF Financed Projects" of 2020:

http://web.undp.org/evaluation/guideline/documents/GEF/TE_GuidanceforUNDP-supportedGEF-financedProjects.pdf

## 1.6 Ethics

14. This Terminal Evaluation has been undertaken as an independent, impartial and rigorous process, with personal and professional integrity and is conducted in accordance with the principles outlined in the UNEG Ethical Guidelines for Evaluations, and the UNDP GEF M&E policies, specifically the August 2020 UNDP "Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects".

## 1.7 Limitations

15. There are limitations to this TE process due to changes in the evaluation approach where the qualitative method was to be employed in person as requested by ToR. The change in the approach was caused by the COVID-19 pandemic and the inability of the International Evaluator to travel to Türkiye and conduct face-to-face meetings with UNDP, the PIU, GDF-ORKÖY, distribution companies, solar installation companies and Project beneficiaries. This task was instead undertaken by the International Evaluator through Zoom meetings from his home base, setup during the period of 1-21 November 2022, to collect and triangulate as much information as possible without field visits. This clearly decreased the quality of information and data collected.

16. To counteract this, follow-up interviews, Zoom conversations and e-mails were utilized by the International Evaluator after the period of Zoom interviews to fill in information gaps. There were no issues with social desirability bias in the qualitative method; all beneficiaries were able to have solar PV installed with no issues. MRV data as quantitative data sources was sound and robust.

# 2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

## 2.1 Project start and duration

17. The ORKÖY-PV Project commenced as of 23 August 2016. The Project has been implemented up to the time of writing of this report (as of December 2022). The Project is scheduled to close as of 28 February 2023.

## 2.2 Development context

18. With the robust growth of its economy between 2009 in 2019, Türkiye has been dependent on the import of energy, mainly oil from Russia, Azerbaijan, and Iran and natural gas from the United States, Algeria and Qatar. With this high dependency on energy imports, there has been concern within the Government of Türkiye (GoT) on this unsustainable approach, which is subject to concerns over the security of supply and the predictability of energy pricing. Until 2015, Türkiye's development of its own domestic renewable energy sources was limited, mainly due to an unappealing financial, legislative and institutional environment for energy investments.

19. More recently, in combination with the slowdown in Türkiye's economy and concerns over its energy security, there have been more significant announcements to encourage renewable energy investments in Türkiye to support implementation of its Electricity Sector Strategy in 2009. This strategy outlined the country's commitment to renewable energy and energy efficiency programs that aim to provide 30% of the country's power supply by the centenary of the Turkish Republic in 2023. These goals are reiterated in Türkiye's National Climate Change Action Plan of 2011 to help reduce carbon emissions of Türkiye, which have been rising at a rate of 8 to 10% annually since 1990. In 2016, GoT introduced the Renewable Energy Resources Areas (YEKA) strategy, a tender process to procure the production of renewable energy.

20. As of January 2022, Türkiye is in the YEKA GES-5 round for solar power plants of 10 MW, 20 MW, and 30 MW capacities throughout the country, with a combined capacity of 1.5 GW. In 2019, Türkiye introduced a net metering scheme for residential PV systems ranging from 1 kW to 10 kW (that was increased to 20 kW in 2022). Furthermore, the GoT changed the definition of unlicensed PV projects, previously defined as systems with not more than 1 MW of generation capacity, to 5 MW[8]. With the 11th National Development Plan (2019-2023) set the target of the electricity generation from renewables as 38.8% for 2023, share of renewable energy in electricity generation reached 54%. In the last 2 years, 97% of additional installed capacity came from renewables with the installed capacity reaching 102,208 MW in September 2022. Türkiye currently ranks 5th in Europe and 12th in the world for RE installed capacity.

21. These government policies and programs are encouraging the growth of solar energy in Türkiye as seen by the rapid rise of in solar PV investments. Since 2015, the installed capacity of solar PV coming online has increased 30-fold from 2.49 MW in 2015 to an installed capacity of 9.46 in 2022[9]. However,

[8] https://www.mordorintelligence.com/industry-reports/turkey-solar-energy-market#:~:text=The%20Turkey%20solar%20energy%20market%20is%20expected%20to,likely%20to%20drive%20the%20Turkey%20solar%20energy%20market.
[9] https://www.globaldata.com/store/report/turkey-solar-pv-market-analysis/

with the current economic situation and supply chain issues, there is some concern that this rapid growth in solar PV cannot be sustained.

## 2.3 Problems that the ORKÖY-PV Project sought to address

22. The target of the ORKÖY-PV Project, Türkiye's forest villages, constitute the lowest income group in the country which need government support to mitigate population losses due to the scarcity of economic opportunities for their residents. As a measure to assist these communities in breaking out of a vicious poverty cycle, the General Directorate of Forestry, Department of Forest and Village Relations (the Project's implementing agency also known as GDF-ORKÖY or ORKÖY) had plans to continue promoting renewable energy technologies within these communities using its own resources to replicate the successful and still ongoing solar water heating program. However, legislation prior to the commencement of this Project in 2016 was not supportive of providing renewable energy concessions, which would improve the access of households in these communities to affordable renewable energy technologies such as solar PV. This changed in 2019 when Türkiye introduced a net metering scheme for residential PV systems ranging from 1 kW to 10 kW to encourage growth in solar PV which changed to 1 kW to 20 kW with legislative changes made in 2022.

23. At its operational commencement on 23 August 2016, the ORKÖY-PV Project sought to address the following barriers deemed as obstacles to solar PV technologies in forest villages:

- the approval process for installations for renewable energy technologies which is long, arduous and protracted;
- poor remuneration and tenure pricing levels that serve as dis-incentives for development of local renewable energy generation, especially considering the FiT relative to import electricity prices;
- prohibitive costs to community generation schemes that include costs for the connections to transmission lines and distribution companies, and re-importing electricity at higher costs to the benefit of utility companies, thus substantially reducing the net-benefit to the community;
- complex and highly bureaucratic administrative processes;
- lack of functional solar PV demonstration installations in forest villages that could convince residents to invest in renewable energy technologies.

## 2.4 Immediate and development goal and objectives of ORKÖY-PV Project

24. The objective of the ORKÖY-PV Project is to "support the successful launching of a sustainable energy financing mechanism within the ORKÖY credit mechanism to ensure that there is at least 30 MW of installed capacity of grid-connected, cooperative solar PV in forest villages by the end of the project". In the Project assisting Türkiye with the promotion and financing of on-grid village cooperative solar PV in forest villages with a GEF grant of US$3.78 million, the Project was to work with ORKÖY to form partnerships with other key actors in the solar PV value chain, including private sector solar PV installers, Turkish utilities, and domestic and international banks as well as other institutions that provide financing. The Project was designed to do this by:

- developing and expanding the policy and institutional framework to promote on-grid, residential solar PV;
- demonstrating the technical and economic viability as well as the business model of the ORKÖY sustainable energy financing mechanism for solar PV systems through 4 pilot installations; and

- scaling up and replication at the national level.

## 2.5 Theory of Change

25. A Theory of Change (ToC) for the ORKÖY-PV Project was prepared by the MTR as illustrated on Figure 1. The Project Results Framework (PRF) in Appendix F, contains a number of indicators and targets that embodies the ToC that the Project is supposed to bring about. The quality of the ToC contains an economy of words that simplify the intent of the Project and its strategy of enabling policies, demonstration projects, replication and scaling up, and MRV. With the clarification of strategy that clarifies indicators that are important for monitoring the progress of the Project, the ORKÖY-PV Project is able to delivers outputs within each outcome towards a partial Sustainable Energy Financing Mechanism (SEFM) outcome of a "broad adoption of solar PV technologies and market transformation" in forest villages. The ToC embodied in the PRF appears rational.

## 2.6 Expected Results

26. The Project was expected to achieve the following outcomes by EOP:

- enhanced enabling policy and environment, within which ORKÖY's sustainable energy financing mechanism continues to operate beyond the lifetime of the project;
- the SEFM of ORKÖY successfully finances four solar PV demonstration projects (each up to 100 kW in total) are setup in forest villages, using either individual household and/or cooperative models;
- the SEFM successfully provides soft loans to contribute to the deployment of at least 30 MW of solar PV during project lifetime; and
- the SEFM has in place systems for M&E, quality standards, and certification systems and training programmes.

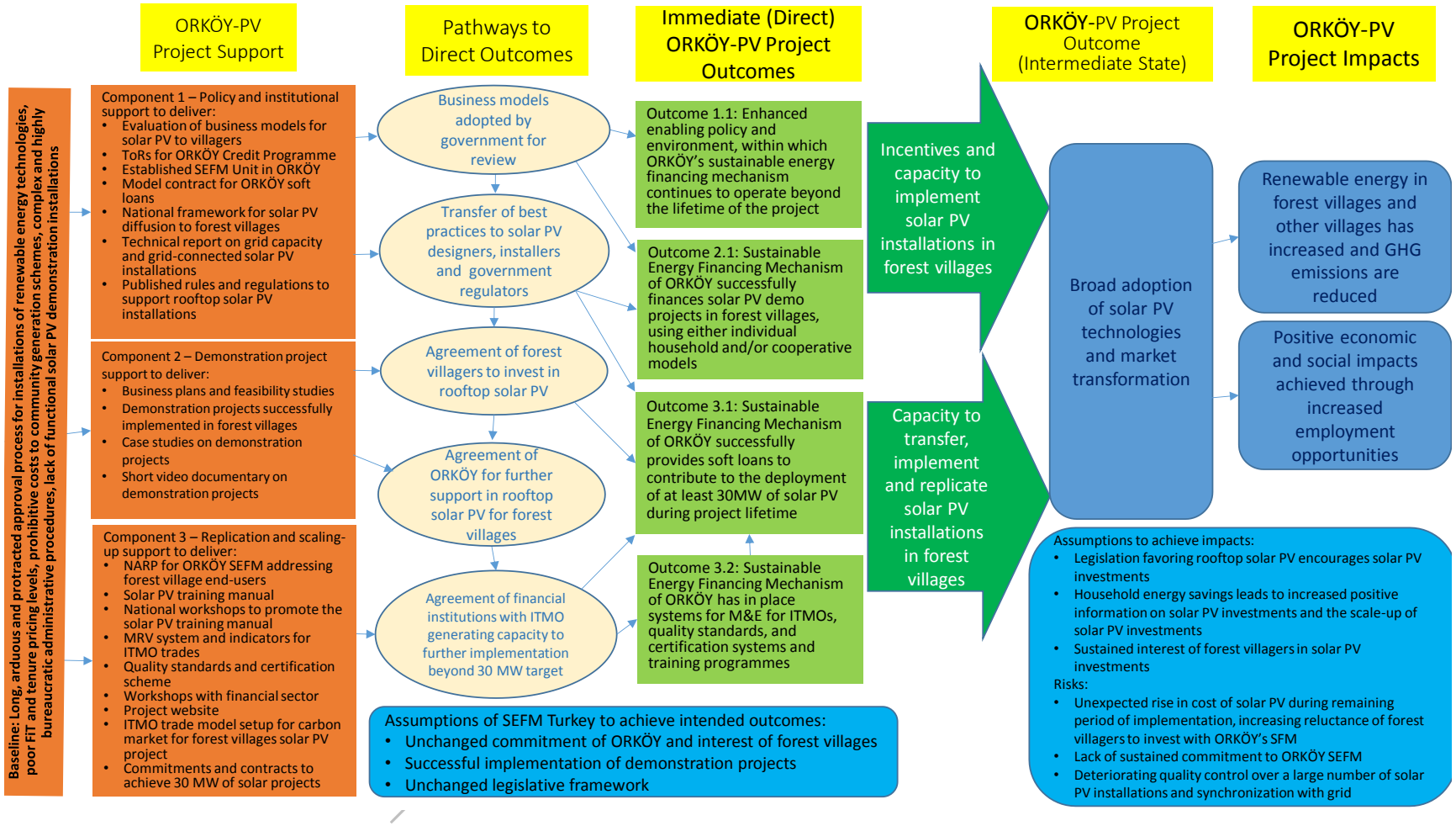
## 2.7 Total resources required by Project

27. Total resources required by the ORKÖY-PV Project are shown on Table 1.

**Table 1: Total Resources Planned by ORKÖY-PV Project**

| **Project Fund Sources** | | |
|---|---|---|
| **Total Budget: $56,280,000; Project Period: 2017-2023** | | |
| **Source** | **Amount($)** | **Main Applications** |
| GEF | 3,780,000 | Solar PV equipment procurement, technical assistance, subcontracting of subjects, international experts, travel, subsidies for solar PV installations, awareness raising, etc. |
| UNDP in-kind | 200,000 | Service support, staff costs； |
| Government financial support for solar PV installations | 47,675,000 | Support for solar PV installations, guarantees for sustainability of scheme if commercial loan contribution fails or for further expansion of the SEFM scheme in case of excess demand from forest villages |
| Enterprise Support | 4,625,000 | Technological support, etc.. |

**Figure 1: Theory of Change for ORKÖY-PVProject**



## 2.8 Main stakeholders and key partners

28. National Government agencies are critical in adopting policies and plans to promote solar PV in forest villages and in ensuring the success of this Project. For the Project, key organizations that are of interest to the Evaluation are:

- the Ministry of Agriculture and Forestry (MoAF) under which the General Directorate of Forestry (GDF) is the organization responsible for the management, development and protection of forests in Turkey. Its mission is to protect forest resources against any threats and danger, to develop forest resources in a nature-friendly manner, and to achieve sustainable forest management at a level that will provide far-reaching sustainable benefits for society in ecosystem integrity. GDF has oversight of ORKÖY, the implementing partner for the Project;
- ORKÖY, founded in 1970 to contribute to the conservation of forests through supporting the local communities. It has a history of operating grant/loan programs since 1974 targeting the forest villagers, mainly to support socio-economic development of forest villagers, and to develop and implement projects on decreasing the wood consumption and alternative energy resources;
- Ministry of Environment, Urbanization and Climate Change (MoEUCC) as the focal point of UNFCCC. MoEUCC has released the MRV legislation directly linked to the Project and is leading the Türkiye part of the World Bank supported "Partnership for Market Readiness"[10] program that has close links to the Project. The Climate Change Department under the General Directorate of Environmental Management is one of the key stakeholders to the Project;
- Ministry of Energy and Natural Resources (MoENR) under which key stakeholders to the Project are:
  - the Energy and Environmental Management Department under the General Directorate of Energy Affairs, responsible for monitoring and assessment of carbon emissions related to the energy sector (including measurement of reduction in carbon emissions installed by ORKÖY) and defining climate change policies within the sector; and
  - the General Directorate of Renewable Energy, a key organization to identify renewable energy policies of Turkey. Although their role is limited in terms of the ORKÖY-PV Project applications by individuals, they are key to the sustainability of the Project, being responsible for controlling possible overlaps between different projects in the same region;
- Energy Market Regulation Agency (EMRA) founded in 2001 whose main aim is to perform the regulatory and supervisory functions in the energy market by ensuring the development of financially sound and transparent energy markets operating in a competitive environment; the delivery of sufficient, good quality, low cost and environment- friendly energy to consumers; and to ensure the autonomous regulation and supervision of these markets;
- Türkiye Electricity Distribution Company (TEDAS), the state economic enterprise responsible for undertaking approval procedures for energy projects including solar PV according to Law#5346 "Law on Utilization of Renewable Energy Sources For the Purpose of Generating Electrical Energy";
- Türkiye Electricity Transmission Company (TEIAS), responsible for transmission of electricity within Türkiye including defining the quotas for electricity feed-in tariffs.

[10] thepmr.org

29. Local-level government agencies of interest to the Evaluation include:

- Forest Cooperatives and the OR-KOOP, legal non-governmental bodies consisting of forest villagers with a mandate of development of forest villagers. OR-KOOP (Central Union of Turkish Forest Cooperatives) is the organization representing the forest cooperatives in Türkiye with its headquarter in Ankara, founded by 27 regional forest cooperative unions with more than 2,000 cooperative members;
- Forest Village Legal Entity, the smallest governance body in Türkiye, managed by a "Mukhtar" (head of village) elected for a 5-year period during national elections. Forest village legal entities are eligible for supported from ORKÖY;
- Municipalities, Provincial Special Entities, Heads of Village.

30. Domestic and International Banks (private sector) were thought to have no role on the Project as they cannot compete with zero interest soft loans from ORKÖY. However, the ORKÖY soft loan programme of US$47 million was not going to be large enough to cover the financing needs for solar PV for all forest villagers with financing costs expected to come down over time. Under Component 3, the involvement of domestic and international banks was deemed to be important to see how they might provide financing for further investment in solar PV systems for forest villagers. Banks such as DenizBank has a financing scheme for solar PV projects for private sector as well as agricultural cooperatives while Ziraat Bankası, and Halkbank have had histories and solid experience in supplying credits to farmers and villagers in Türkiye.

31. Solar PV installers and manufacturers (private sector) have the role to install and maintain solar PV equipment for forest villagers who will have successfully obtained financing either from the ORKÖY soft loans or later from domestic and international banks. In Türkiye, the domestic solar PV installers and manufacturers have been increasing during the last years, and are mostly members of GUNDER. The International Solar Energy Society, the Turkish Section of GUNDER serves as the umbrella organization of solar PV companies in Türkiye with the aim to promote all activities directed at the better utilization of solar energy. GUNDER serves the private sector as well as governmental bodies but as a partner to the ORKÖY-PV Project.

32. Stakeholder partnerships on the ORKÖY-PV Project are further discussed in Section 3.1.4 (Para 42) and Section 3.2.2 (Paras 52 to 53).

# 3. FINDINGS

## 3.1 Project Design and Formulation

33. The ORKÖY-PV Project design was formulated in close consultation with GoT agencies, international organizations, finance institutions, NGOs, PV manufacturers and installers, with the intention of catalyzing energy-related GHG emission reductions through increasing the deployment of renewable energy in forest villages and other villages in Türkiye. Forest villages are defined under the Turkish Forest Law #6832 as any village that contains a forest area within their administrative borders. While these communities have limited land resources and a lack of income generating opportunities, they have traditionally extracted resources from these forested areas for their income. Moreover, they have been traditionally dependent on fossil fuels, and do not have the capacity or fiscal resources to invest in renewable energy technologies such as solar PV, which have the potential to decrease their living expenses and reduce energy-sector related GHG emissions.

34. Forest villages were identified in the 5th National Communications to the UNFCCC of Türkiye as being particularly vulnerable to the impacts of climate change. Since they are eligible for financial and technical support from ORKÖY, the ORKÖY-PV Project was designed to overcome capacity and fiscal constraints, and employ existing financial packages within ORKÖY to bring affordable solar PV technologies to forest villagers. While the Turkish Law on "Utilization of RES for the Purpose of Generating Electrical Energy" was adopted in 2005 with subsequent amendments as recently as 2012, the ORKÖY-PV Project strategy was to strengthen existing policies and institutional support to enable growth of solar PV in forest villages. The Project was also setup to support demonstration solar PV projects in forest village jurisdictions, and facilitate scale up of solar PV installations in forest villages on the basis of successful demonstrations.

35. The approach of the ORKÖY-PV Project seeks to catalyze the deployment of solar PV to forest villages through the ORKÖY Social or Economic Credit Programme. With the PPG phase of ORKÖY-PV being implemented in 2015, some of the *prominent baseline conditions* and activities prior to the commencement of ORKÖY-PV include:

- ORKÖY initiating a SWH programme in 2004 for forest villages[11]. In late 2018, a cumulative total of more than 144,000 households received an interest-free credit to buy a solar water heater. The credit, covering 100 % of the investment costs for a solar water heater, was to be repaid in 3 equal instalments, starting one year after installation. With less than a 1% default rate on these loans, the successes of this program have been cited as an example for use in a similar solar PV program financed by ORKÖY;
- low capacity of ORKÖY staff to manage a solar PV program. A grid connected solar PV program would involve extensive consultations with MoENR, TEDAS and TEIAS, all of whom ORKÖY staff have not had any exposure;
- cost of a grid connected solar PV system was not affordable to forest villagers. Without any access to commercial financing and the high cost of borrowing in Türkiye in 2015, forest villagers needed a form of concessional financing from external entities such as ORKÖY to be able to access such systems;

[11] https://www.solarthermalworld.org/content/40000-forest-villagers-turkey-heat-water-sun

- while rooftop solar PV systems are more costly[12], the Project design initially envisaged the implementation of land-based solar PV plants as one measure to reduce the costs of solar PV electricity to forest villagers to an extent that the payback period of any solar PV investment was to be less than 7 years. To effectively implement this modality, the Project and ORKÖY sought to implement land-based solar PV projects through forest cooperatives, notwithstanding that ORKÖY's experience with these legal entities was very poor[13];
- there is an extensive network of ORKÖY field offices throughout Türkiye that has the capacity for rapid transfer of positive messaging to other field offices and Forest villages. This capacity can be used to spread positive messaging over an affordable grid connected solar PV scheme to be demonstrated by the Project to reduce monthly energy costs of forest villagers.

36. Thus, the main objective of the ORKÖY-PV Project was to "support the successful launching of a sustainable energy financing mechanism within the ORKÖY credit mechanism to ensure that there is at least 30 MW of installed capacity of grid-connected, cooperative solar PV in forest villages by the end of the project". On the ORKÖY-PV Project with a GEF grant of US$3.78 million that assists Türkiye with the promotion and financing of on-grid village cooperatives with solar PV in forest villages, the Project was to work with ORKÖY to form partnerships with other key actors in the solar PV value chain, including private sector solar PV installers, Turkish utilities, and domestic and international banks as well as other institutions that provide financing. The Project was designed to do this by:

- developing and expanding the policy and institutional framework to promote on-grid, residential solar PV;
- demonstrating the technical and economic viability as well as the business model of the ORKÖY SEFM for solar PV systems through 4 pilot installations; and
- scaling up and replicating solar PV installations at a national level.

37. As such, the intended outcomes of the ORKÖY-PV Project are:

- Outcome 1.1: Enhanced enabling policy and environment, within which ORKÖY's sustainable energy financing mechanism continues to operate beyond the lifetime of the project;
- Outcome 2.1: Sustainable Energy Financing Mechanism of ORKÖY successfully finances four Solar PV demonstration projects (each up to 100 kW in total) are setup in forest villages, using either individual household and/or cooperative models;
- Outcome 3.1: Sustainable Energy Financing Mechanism of ORKÖY successfully provides soft loans to contribute to the deployment of at least 30MW of solar PV during project lifetime; and
- Outcome 3.2: Sustainable Energy Financing Mechanism of ORKÖY has in place systems for M&E, quality standards, and certification systems and training programmes.

[12] Applications for each solar PV installation was the same. By this logic, rooftop installation application costs would be very high in comparison to a 100 kW land-based solar PV plant.

[13] This included transactions where ORKÖY gives the cooperatives funds for a project, with the cooperative paying back the interest free loan within 3 years (such as for heating). A default rate of 95% of payback for these loans from forest cooperatives has occurred.

### 3.1.1 Analysis of Project Results Framework for the ORKÖY-PV Project

38. The Project Results Framework (PRF) of the ORKÖY-PV Project meets "SMART" criteria[14], sufficient to effectively monitor project progress. Edits were provided to the PRF during the July 2019 MTR as provided in Appendix F. Project design and formulation is rated as **satisfactory**.

### 3.1.2 Risks and Assumptions

39. Project risks are covered in the ToC and the PRF in Appendix F. Three risks were identified that were within, to a certain extent, under control of Project activities:

- unexpected rise in cost of solar PV during remaining period of implementation, increasing reluctance of forest villagers to invest with ORKÖY's SEFM;
- lack of sustained commitment to ORKÖY's SEFM;
- deteriorating quality control over a large number of solar PV installations and it synchronization with the grid.

The risks covered in the ToC and PRF are reasonable.

40. Assumptions in the PRF in Appendix F are also covered in the ToC included:

- unchanged commitment of ORKÖY and interest of forest villages;
- successful implementation of demonstration projects;
- unchanged legislative framework;
- legislation favoring rooftop solar PV encourages solar PV investments;
- household energy savings leads to increased positive information on solar PV investments and the scale-up of solar PV investments; and
- sustained interest of forest villagers in solar PV investments.

The assumptions covered in the ToC and PRF are reasonable.

### 3.1.3 Lessons from Other Relevant Projects Incorporated into ORKÖY-PV Project Design

41. There are no lessons from other projects incorporated into ORKÖY-PV Project design. The Government of Türkiye (GoT) committed to the UNFCCC and the Kyoto Protocol to reduce GHG emissions, implementing policies which reduce greenhouse gas emissions and enhance sinks which includes promoting solar PV. Under its own initiative, the GoT adopted the Electricity Sector Strategy in 2009 that includes renewable energy and energy efficiency programs that aim to provide 30% of Türkiye's power supply by the centenary of the country in 2023. These goals are reiterated in Türkiye's National Climate Change Action Plan of 2011. With Türkiye liberalizing its energy sector, more than 84% of electrical generation facilities in 2021 are run by the private sector.

### 3.1.4 Planned Stakeholder Participation

42. A wide range of stakeholders was relevant to overcoming the aforementioned barriers to be involved on this Project. The stakeholder participation included national-level government officials, local-level

[14] Specific, Measurable, Attainable, Relevant, Time-bound

government officials and staff, solar PV suppliers and manufacturers based in Türkiye. Stakeholders who were targeted for participation on the Project are mentioned in Paras 28-31. In summary, the planned level of stakeholder involvement is **satisfactory** in consideration of wide range of stakeholders required for successful deployment of solar PV in forest villages. While reaching out to this number of stakeholders is ambitious, the involvement of all these listed stakeholders seems well justified.

### 3.1.5 Linkages between ORKÖY-PV Project and other interventions in the sector

43. There were linkages with the ORKÖY PV Project with 2 UNDP Türkiye Projects:

- the UNDP Support to the Syrian Refugee Crisis Response and Promoting an Integrated Resilience Approach; and
- the Upland Rural Development project with MoAF.

Both projects benefitted from the ORKÖY project team who helped these 2 projects prepare ToRs and create linkages with GUNDER for their renewable energy interventions. While assistance to these projects did not have a bearing on the implementation of ORKÖY project, the assistance facilitated more efficient implementation of these projects.

### 3.1.6 Gender responsiveness of Project design

44. A review of the ORKÖY-PV ProDoc reveals that gender and human rights-based issues were considered wherever practical on this Project. This included a focus on gender balance early in the Project in the creation of solar PV related employment, primarily for maintenance and security of solar PV installations under Output 1.1 which was on the evaluation and selection of public-private business models for provision of affordable grid connected residential solar PV to forest villagers. There was also mention of gender balance on the Project Board. Otherwise, none of the remaining outcomes or outputs were linked to rights-based or gender issues with gender-related employment targets not being pursued, primarily due to abandonment of land-based solar PV models. There was no gender or rights-based action plan to claim the Project had a gender sensitive design. As such, the Project has made minimal efforts to include gender dimensions on solar PV installations in forest villages.

### 3.1.7 Society and Environmental Safeguards

45. There were 2 risks mentioned under UNDP's Social and Environmental Screening Procedures (SESP) for this Project "environmental and social risks of solar PV installments and electric generation" and "potential risk to health and safety of individuals (PV plant maintenance and security staff)". The environmental and social risk has much to do with large-scale solar PV systems that can cause land degradation and habitat loss due to the size of instalments. Though the solar PV instalments foreseen by the Project are small-scale and under 100 kWp, the Project was to come up with draft site selection criteria under ORKÖY's conditions for solar PV including no harm to habitats and biodiversity. Project plans were to establish solar PV panels within or nearby the village boundaries that are not valuable in terms of key habitats. This was to be implemented in accordance with the SESP, the objectives of which are to: (a) integrate the SES Overarching Principles (human rights, gender equality and environmental sustainability); (b) identify potential social and environmental risks and their significance; (c) determine the Project's risk category (Low, Moderate, High); and (d)

determine the level of social and environmental assessment and management required to address potential risks and impacts.

## 3.2 Project Implementation

46. The ORKÖY-PV Project commenced on 23 August 2016 as a 4-year project, but terminating on 28 February 2023, 6.5 years (78 months) later. Progress to date has been satisfactory with details available in this section and Section 3.3 of this report. A summary of significant events for the first 76 months of the Project include:

- the Government of Türkiye signing the ORKÖY-PV ProDoc on 23rd of August 2016;
- the Inception Workshop for the Project conducted in November 2016;
- the Project entering into a Responsible Party Agreement (RPA) on 29 June 2017 with GUNDER to provide extensive expertise and access their international professional network within the PV industry. They immediately commenced drafting reports on grid capacity and requirements for 4 villages where demo projects were to be installed. These reports were completed in late 2017;
- changes in renewable energy legislation in Türkiye in early 2018 that affected strategies of ORKÖY-PV, in particular, the use of Renewable Energy Cooperatives (RECs) as a means of streamlining land acquisition for land-based solar plants;
- delays experienced in ORKÖY inputs into the Project by mid-2018 due to changes in the government when the implementing partner of the Project changed its name from the Ministry of Forestry and Water Affairs to the current name of the Ministry of Agriculture and Forestry;
- the commencement of a dramatic rising commercial interest rates for loans in Türkiye as of early 2018, which had numerous impacts most notably the slowdown of manufacturing activity. This in turn was seen to cause delays from GoT in the determination of feed in tariffs for solar PV, and net metering policies;
- numerous issues emerging in late 2018 concerning the use of forest cooperatives for owning land-based solar PV plants, further delaying progress of these projects and forcing ORKÖY to assess other legal entities such as “Village Legal Entities” as other alternatives;
- an Invitation to Bid (ITB) process initiated in August 2018 for the 4 land-based solar PV plants. Unfortunately, several obstacles were encountered between mid-2018 and early 2019 to acquire lands for these plants. As of May 2019, only 2 of these plants have received all permits while the other 2 land-based projects were cancelled. Project resources from these cancelled projects went to other rooftop solar PV installations including Gecek (near Corum) and Sarıgül Village (Elazıg Province);
- establishment of a “sustainable energy financing mechanism” unit (or SEFM unit) within ORKÖY setup in early 2019, consisting of 4 full-time personnel from OGM;
- EIGM issuing a policy on net metering for rooftop solar PV installations on 9 May 2019 with specific measures to ensure the focus of electricity generation from these rooftop solar PV installations is for self-consumption, and not sale of electricity into the grid;
- a 2nd ITB process initiated in May 2019 to implement the 2 land-based solar PV plants that have received all permits for implementation. Work on the plants started in July 2019 with the plants being grid connected by February 2020;
- 255 rooftop solar PV installations completed by April 2021 based on 100% GEF grant;
- 551 rooftop solar PV installations completed by December 2021 based on 33% GEF grant, 13.5% ORKÖY grant, 53.5% ORKÖY soft loan; and

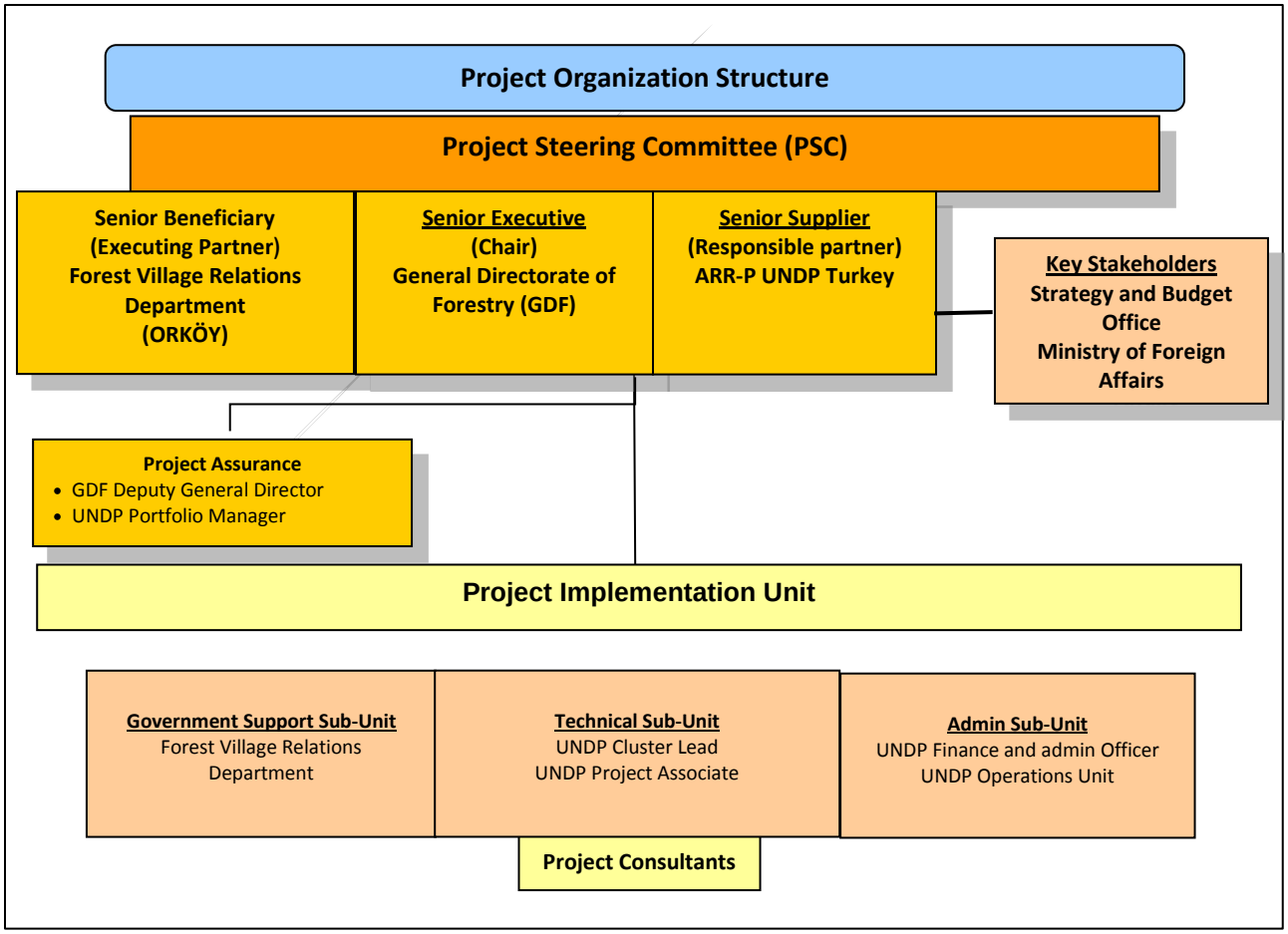
- Another 684 rooftop solar PV installations were completed in November 2022 based on 33% GEF grant, 13.5% ORKÖY grant, 53.5% ORKÖY soft loan.

### 3.2.1 Adaptive Management

47. Adaptive management is discussed in GEF terminal evaluations to gauge Project performance in its ability to adapt to changing regulatory and environmental conditions, common occurrences that afflict many GEF projects. Without adaptive management, GEF investments would not be effective in achieving their intended outcomes, outputs, and targets. Several examples are available of adaptive management on the ORKÖY-PVProject to adapt to the numerous changing circumstances to ensure effective implementation of the Project during its 6.5-year duration.

48. The management arrangements for the ORKÖY-PV Project are shown on Figure 2. The Project Steering Committee was to be responsible for major decisions and monitoring project progress. The implementing partner, OGM, directed overall implementation of the Project and delegated day-to-day coordination work to the national level. PIU and UNDP, both through its CO and its CIS RCU, provided Project assurance and backstopping.

**Figure 2: Current management arrangements for the UNDP-GEF Project "Sustainable Energy Financing Mechanism for Solar Photovoltaic Systems in Forest Villages in Türkiye" (ORKÖY-SEFM) Project**



49. The PIU has been efficient in managing the participatory implementation of the Project and responsive to stakeholders and proactive in seeking their expert inputs through commissioned sub-contracts to achieve intended outcomes. There is a close coordination between the ORKÖY, GDF and the PIU, and a positive collaboration among the GDF and UNDP for the Project's execution and alignment to the developing national policy. The UNDP has provided timely advice on Project implementation, monitoring, and reporting. The forest villages, solar PV companies, sub-contractors, and distribution companies are appreciative of the PIU's Project management and of UNDP's coordination and facilitation, and these stakeholders have been able to participate in and contribute meaningfully to Project implementation.

50. The PIU, however, has had to adaptively manage the Project due to unexpected circumstances which essentially brought the Project outside of its design. These actions consisted of:

- major changes in Türkiye's governance to a presidential system in early 2019 that included the merging of two ministries related to the Project. This changed the GDF decision makers including the deputy general director, head of department, deputy head department and the section manager, and forced the PIU into undertaking several meetings with the new GDF team to become familiar with the Project;
- harmonization of ORKÖY financial support regulations with the new renewable energy legislation in the National Framework of May 2019;
- pivoting away from land-based solar PV installations in 2019 due to problems implementing these installations, causing delays in the progress of the Project. Despite 2 land-based solar PV plants having been constructed, 2 plants were cancelled. The savings from the 2 cancelled plants was used to add to the number of rooftop solar PV installations in several villages;
- a focus on rooftop solar PV installations based on the new net metering policy of the GoT of May 2019. Not only did the policy facilitate rooftop solar PV installations, it allowed the Project to make substantial progress towards providing renewable energy for forest villagers;
- obtaining a Project extension from August 2022 to February 2023 to secure GEF funding for new PV installations during 2022, and assure GDF funding for 2023.

51. In summary, adaptive management of the ORKÖY-PV Project has been rated as ***satisfactory*** with the Project benefitting in making substantial progress towards meeting its GHG emission reduction target.

### 3.2.2 Actual Stakeholder Participation Partnership Arrangements

52. The Project's progress is reliant on the active participation and contribution of its stakeholders, namely the MoAF (and its sub-agencies GDF and ORKÖY), MoE, EMRA, TEDAS, Forest Cooperatives, village headmen, GUNDER (and its members of solar PV installers and manufacturers) and forest village beneficiaries. The PIU, with the guidance of UNDP, has effectively led stakeholder engagement and effectively leveraged the contributions of a wide range of stakeholders for achieving the Project's intended outcomes.

53. GUNDER assisted the PIU in coordinating the technical assistance in planning the solar PV installations, the tendering process to select companies for supply and installation of solar PV equipment, and the reporting of electricity and carbon emission reductions generated. All Project beneficiaries who had solar PV installed on their rooftops or on land-based installations, were all extremely pleased with the services provided by the solar PV installation companies, and the

technical assistance provided by ORKÖY field personnel, Project consultants and the PIU. Stakeholder participation partnership arrangements has been rated as **satisfactory**.

### 3.2.3 Project Finance

54. The ORKÖY-PV Project had a GEF budget of US$3.78 million that was disbursed over a 6.5-year duration, managed by the PIU under the direction of a Project Steering Committee (PSC) headed by GDF. Table 2 depicts disbursement levels up to 31 December 2022, 2 months prior to the terminal date of the ORKÖY-PV Project of 28 February 2023, revealing the following:

- Project finances are sound with appropriate financial controls including reporting and planning, that allow the PIU to make informed decisions regarding the budget and allow for timely flow of funds;
- spending rate against intended expenditures shows that the Project was delayed for nearly 2.5 years. With the new RE legislation of 2019, Project spending started to accelerate after 2019 to 2022;
- Expenditures were mainly national contractual services for solar PV equipment procurement and installation. There were also significant expenditures on training, workshops and conferences followed by individual contractual services (mainly for technical assistance of GUNDER and others). Table 3 depicts the expenditures by ATLAS code;
- The Istanbul Regional Hub was involved with detailed information if there were any deviations before releasing the ASL (authorized spending limit) for that particular year;
- Government audits were carried out by the UNDP Türkiye Office.

55. Planned Project co-financing in the ProDoc was estimated to be US$ 52.5 million. Actual co-financing realized from the ORKÖY-PV Project was only US$9.749 million or 18.5% of the target. This level of co-financing on the ORKÖY-PV Project is reflective of the Project delays in investments leveraged by the Project through ORKÖY-PV activities. ORKÖY finances allocated their fair share of funds to promote and mainstream rooftop solar PV installations as well as land-based solar PV installations. While the co-financing amount is low, the Project can be considered a success given the commitment made by GDF to finance solar PV for forest villages well into 2023 and beyond. Table 4 provides details of ORKÖY-PV Project co-financing. Table 5 provides co-financing details.

56. In conclusion, the cost effectiveness of the ORKÖY-PV Project has been **satisfactory** in consideration of the Project meeting its intended goal of sustainable financing for RE for forest villagers.

### 3.2.4 M&E Design at Entry and Implementation

57. The Project follows the standard monitoring and evaluation design procedures adopted by full-sized GEF projects. The M&E design was deemed **satisfactory**.

58. The PRF was used effectively as a management tool towards monitoring implementation progress. The PRF and AWPs were two of the primary tools for monitoring the Project's progress and results. The institutional arrangement for the Project's monitoring and evaluation was formalized in the inception workshop. The PIU conducted the daily Project monitoring and evaluation with its expert team and the subcontractors, and the financial audit of the Project's implementation progress was conducted by an independent auditor proposed by UNDP.

**Table 2: GEF Project Budget and Expenditures for the ORKÖY-PV Project (in USD as of 31 December 2022)**

| ORKÖY-SEFM Components | Budget (from Inception Report) | 2016[27] | 2017 | 2018 | 2019 | 2020 | 2021 | 2022[28] | Total Disbursed | Total to be expended by EOP | Total remaining |
|---|---|---|---|---|---|---|---|---|---|---|---|
| COMPONENT 1: Policy & Institutional Framework for supporting sustainable energy financing mechanism for solar power in forest villages | 755,100 | 11,835 | 38,905 | 76,748 | 73,251 | 60,066 | 67,256 | 188,352 | 516,413 | 91,592 | 147,095 |
| COMPONENT 2: Solar PV demonstration Projects | 1,241,009 | 14,250 | 84,081 | 81,224 | 354,095 | 750,907 | 157,034 | 14,293 | 1,455,884 | - | (214,875) |
| COMPONENT 3: Replication and scaling up – Enhancement of the sustainable energy financing mechanism | 1,633,891 | - | 16,851 | 22,503 | 53,422 | 97,439 | 505,044 | 809,049 | 1,504,308 | 61,803 | 67,780 |
| Project Management | 150,000 | 5,429 | 42,851 | 22,899 | 26,505 | 15,804 | 17,051 | 9,519 | 140,057 | 9,943 | (0) |
| **Total (Actual)** | **3,780,000** | **31,514** | **182,687** | **203,373** | **507,273** | **924,216** | **746,385** | **1,021,213** | **3,616,662** | **163,338** | **0** |
| Total (Cumulative Actual) | | 31,514 | 214,201 | 417,575 | 924,848 | 1,849,064 | 2,595,449 | 3,616,662 | | | |
| Annual Planned Disbursement (from ProDoc)*** | 3,780,000 | 549,437 | 1,328,991 | 1,041,656 | 685,114 | 174,802 | | | | | |
| **% Expended of Planned Disbursement** | | **6%** | **14%** | **20%** | **74%** | **529%** | | | | | |

[27]Commencing 23 August 2016, the date the Project Document signed by the Government of Türkiye
[28]Up to 31 December 2022

**Table 3: Expenditures by ATLAS Code (as of 31 December 2022)**

| ATLAS Code | Expenditure Description | Spent to date (US$) |
|---|---|---|
| 71200 | International Consultants | 76,944 |
| 71300 | Local Consultants | 152,736 |
| 71400 | Contractual Services - Individuals | 595,516 |
| 71600 | Travel | 78,231 |
| 72200 | Equipment and Furniture | 1,947 |
| 72300 | Materials & Goods | 0 |
| 74200 | Audio Visual & Print Prod Costs | 41,606 |
| 74500 | Miscellaneous Expenses | 411 |
| 76100 | Realized loss | -3,173 |
| 75700 | Training, Workshops and Conference | 304,842 |
| 72100a | Contractual Services - Companies / Nat | 2,311,589 |
| 72100b | Contractual Services - Companies / Int | 0 |
| 72800 | Information Technology Equipment | 4,295 |
| 64397 | Services to projects -CO staff | 0 |
| 74596 | Services to projects | 19,917 |
| 72500 | Supplies | 559 |
| 73100 | Rental & Maintenance-Premises | 0 |
| 74100 | Professional Services | 31,242 |
| 74100b | Professional Services - International | 0 |
| | **Total:** | **$3,616,662** |

**Table 4: Co-Financing for the ORKÖY-PVProject (as of 31 December 2022)**

| Co-financing (type/source) | UNDP own financing (million USD) | | Government (million USD) | | Partner Agency (million USD) | | Private Sector (million USD) | | Total (million USD) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual |
| Grants | 0.100 | 0.080 | 45.000 | 2.294 | | | | | 45.100 | 2.374 |
| Loans/Concessions | | | | | | | | | 0.000 | 0.000 |
| • In-kind support | 0.100 | 0.100 | 2.675 | 2.650 | | | 4.625 | 4.625 | 7.400 | 7.375 |
| • Other | | | | | | | | | 0.000 | 0.000 |
| **Totals** | **0.200** | **0.180** | **47.675** | **4.944** | **0.000** | **0.000** | **4.625** | **4.625** | **52.500** | **9.749** |

**Table 5: Summary of Co-Financing for the ORKÖY-PV Project (as of 31 December 2022)**

| Sources of Co-financing | Type of Co-financing | Investment Mobilized (million USD) |
|---|---|---|
| Implementing agency | Grants | 0.080 |
| | In-kind support | 0.100 |
| Government | Grants | 2.294 |
| | In-kind support | 2.650 |
| Private Sector | Grants | 0 |
| | In-kind support | 4.625 |
| **Total Co-Financing:** | | **9.749** |

59. The PIU prepared the annual work plan with detailed monitoring and evaluation indicators and targets. Progress towards targets was monitored by sub-contractors, who reported to the PIU. Sub-contractors would have access to quality data, mainly the installation of rooftop solar PV. Unfortunately, no gender disaggregated information of the impacts of solar PV was generated from these activities. Furthermore, there is no institutionalized online MRV (Para 98).

60. The PIU provided oversight to the M&E process, assessing the quality of implementation through progress report reviews supplemented with on-site field visits. Information from the M&E process would be transferred to the PIR documents prepared by PIU's Technical Sub Unit. AWPs and budgets were prepared by that unit but only submitted to UNDP for approval.

61. M&E design at entry was rated as **satisfactory**. Implementation of the M&E plan was *rated as* ***satisfactory***. Ratings according to the GEF Monitoring and Evaluation system[29] are as follows:

- *M&E design at entry - 5;*
- *M&E plan implementation - 5;*
- *Overall quality of M&E - 5.*

### 3.2.5 Performance of Implementing and Executing Entities

62. The GDF, ORKÖY and UNDP have been efficient in managing the execution of the Project. They have been responsive to stakeholders and proactive in seeking their expert inputs through commissioned sub-contracts for achieving the Project's outcomes. This was a strong and common opinion of all Project stakeholders.

63. There was positive collaboration between the GDF, ORKÖY, the PIU and UNDP for the Project's execution and alignment to developing national policy. UNDP has provided timely advice on Project implementation, monitoring, and reporting as reported by GDF and ORKÖY personnel. The forest villages, cooperatives, solar PV suppliers and manufacturing companies, and sub-contractors all mentioned that they have been able to participate in and contribute meaningfully to Project implementation due in large part to PIU's Project management and UNDP's coordination and facilitation.

64. The performance of implementing and executing entities can be summarized as follows:

- *Implementing Partners (OGM, ORKÖY)* – 5;
- *Implementing Entity (UNDP)* – 5;
- *Overall quality of implementation/execution (UNDP/ OGM/ORKÖY)* – 5.

[29] 6 = HS or Highly Satisfactory: There were no shortcomings;
5 = S or Satisfactory: There were minor shortcomings,
4 = MS or Moderately Satisfactory: There were moderate shortcomings;
3 = MU or Moderately Unsatisfactory: There were significant shortcomings;
2 = U or Unsatisfactory: There were major shortcomings;
1 = HU or Highly Unsatisfactory
U/A = Unable to assess
N/A = Not applicable.

### 3.2.6 Risk Management

65. During implementation, the Project identified risks that have not been fully resolved for mitigation measures:

- ORKÖY loan commitments may not be fulfilled depending on the GDF yearly allocated budget. The proposed mitigation measure by the UNDP CO is to try to keep demand high for forest villagers applying for credit, which may induce GDF to continue funding its credit facility. However, stable demand for credit does not guarantee continuous financing of the facility;
- The proposed measure by the Project of "ratifying the Paris Agreement with a target of 2053 net-zero, and ongoing transition for the EU Green Deal creates more opportunities for investing in PV systems for finance institutes, and current demand and supply rates created by the Project will be sustained by the ORKÖY corporate legislation and the SEFM unit" is not sufficient. Rising costs cause inflation and high-interest rates in the banks, and banks are not willing to finance solar PV projects as payback periods are getting longer. The Project needs to look beyond the initial focus of the funding mechanism, and prepare a strategy for clean energy financing;
- There is no strategy on disposal and recycling of used solar PV equipment after its service life. This risk has not been reflected in the SESP which would have led to a change of the risk categorization from low to moderate risk. This risk should be reflected in the Environmental and Social Management Plan (ESMP) before the EOP to help stakeholders manage this risk, as the growth of solar PV is expected to continue in the villages well after the EOP (see Para 134).

## 3.3 Project Results and Impacts

66. This section provides an overview of the overall results of the ORKÖY-PV Project and assessment of the relevance, effectiveness, efficiency, country ownership, mainstreaming, sustainability, impact and cross-cutting issues of the ORKÖY-PV Project. In addition, evaluation ratings for overall results, effectiveness, efficiency, and sustainability are also provided against the July 2019 PRF (as provided in Appendix F)[30]. For Table 6, a summary of the achievements of ORKÖY-PV Project at the Project Objective level, as well as outcome and output levels with evaluation ratings are provided. The "status of target achieved" is color-coded as per the following color-coding scheme:

| | | |
|---|---|---|
| Green: Completed, indicator shows successful achievements | Yellow: Indicator shows expected completion by the EOP | Red: Indicator shows poor achievement – unlikely to be completed by project closure |

### 3.3.1 Progress towards objective

67. The Project has fallen short of its GHG emissions reduction target of 28,750 $tCO_{2eq}$, reaching only 1,886 $tCO_{2eq}$ as of 31 December 2022. However, there has been substantial investments by GDF to install pilot rooftop solar PV in forest villages. Table 7 summarizes the GHG emission reduction calculation for the Project.

[30] Evaluation ratings are on a scale of 1 to 6 as defined in Footnote 25.

**Table 6: Project-level achievements against ORKÖY-PV Project targets**

| Project Strategy | Performance Indicator | Baseline | Target | Status of Target Achieved | Evaluation Comments | Rating [19] |
|---|---|---|---|---|---|---|
| **Project Objective:** To support the successful launching of a sustainable energy financing mechanism within the ORKÖY credit mechanism to ensure that there is at least 30 MW of installed capacity of grid-connected, residential solar PV in forest villages in Türkiye (approximately 2.5% or 175,000 people living in forest villages will have their electricity needs met by solar PV) by the end of the project | Amount of reduced $CO_2$ emissions from the power sector (compared to the project baseline) by end of project, tons $CO_{2eq}$ | 0 | 28,750 | 1,886 (from Tracking Tool) | See Paras 68-71 | 4 |
| | Cumulative installed capacity of grid-connected PV systems (kWp) | 0 | 30,000 | 3,487 (from Tracking Tool) | | |
| | Cumulative total electricity generation from installed grid-connected PV systems (kWh/year) | 0 | 47,520,000 | 3,238,210 (from Tracking Tool) | | |
| | Cumulative number of created job positions for forest villagers related to solar pv | 0 | 450 | 4 | See Para 72 | |
| | Number of people living in forest villages who will have their electricity needs met by solar PV | 0 | 175,000 | 4,863 (from Tracking Tool) | | |
| **Overall Rating – Objective-Level Targets** | | | | | | **4** |
| **Outcome 1.1:** Enhanced enabling policy and environment, within which ORKÖY's sustainable energy financing mechanism continues to operate beyond the lifetime of the project | SEFM unit appointed, introduced and confirmed by ORKÖY | None | 5 months after project start | *SEFM (Sustainable Energy Finance Mechanism) Unit under ORKÖY Department of General Directorate of Forestry formed, and its operational by end of 2021* | See Para 74 | 5 |
| | National Framework published and approved | None | Published before end of 2019 | May 2019 renewable energy legislation change superseded all PV model initiatives to implement roof-top PV systems and acted as National Framework. | See Paras 75, 77 and 78 | 5 |
| | Technical report developed and published | 0 | Published report 7 months after project start | The technical report for the 2nd phase pilot roof-top PV systems was completed in 2022. | See Para 76 | 5 |
| **Output 1.1:** Evaluation and selection of public-private business models (ORKÖY, solar PV installers, utilities, domestic banks) for provision of affordable, grid-connected residential solar PV to forest villagers, using an individual household and/or cooperative model | Completed and published Evaluation report by Year 1 | None | ER by late 2019 | Feasibility studies were prepared by GUNDER by 2019 for individual households and cooperative model for solar PV systems for 4 pilot villages. | | |

[19] Ibid 25

| Project Strategy | Performance Indicator | Baseline | Target | Status of Target Achieved | Evaluation Comments | Rating [19] |
|---|---|---|---|---|---|---|
| **Output 1.2:** Terms of Reference for ORKÖY's Credit Programme are revised, agreed, published and disseminated | • Completed and published TOR by Year 1<br>• No. of dissemination events for stakeholders | • 0<br>• 0 | • Published ToR before end of 2019<br>• At least 5 | • Terms of Reference for ORKÖY's Credit Programme have been published and disseminated in 2019<br>• >5 | | |
| **Output 1.3:** Sustainable energy Financing unit established within ORKÖY with dedicated full time staff | • No. of full time staff appointed<br>• ORKÖY-PV unit appointed, introduced and confirmed by ORKÖY | • 0<br>• No ORKÖY-PV unit | • At least 2<br>• Unit appointed 5 months after project start | • 2 section managers and an engineer are full time<br>• Unit appointed in mid-2019 | | |
| **Output 1.4:** Model contract for ORKÖY soft loan developed and utilized | Model contract published and approved by ORKÖY | None | Published before end of 2019 | ITB (Invitation to Bid) published on May 2019. | | |
| **Output 1.5:** National Framework designed and operationalized to use Türkiye's Feed-In-Tariff scheme for the purpose of solar PV for forest villagers | National Framework published and approved | None | Framework approved by end of 2019 | May 2019 renewable energy legislation change superseded all PV model initiatives to implement roof-top PV systems and acted as National Framework. | See Paras 75, 77 and 78 | |
| **Output 1.6:** Technical report on grid capacity and requirements for grid-connected PV installations | Technical report developed and published | None | Technical report published 7 months after start of project | Feasibility studies were prepared by GUNDER by 2019 for individual households and cooperative model for solar PV systems and grid capacity for 4 pilot villages. | | |
| **Output 1.7:** Reports on results of recently introduced and piloted net metering published and disseminated | Net metering pilot results published<br>Number of dissemination events | • 0<br>• 0 | • Results published by end of 2019<br>• 2[20] | • None published due to net metering being applied nationwide leading to redundancy of report<br>• SEFM unit continued to share experiences and lessons learned activities among GDF's local personnel at workshops and successfully connected with more than 1,400 forest villagers by 2022 through regular site visits. | | |
| **Overall Rating – Outcome 1** | | | | | | **5** |
| **Outcome 2.1:** Sustainable Energy Financing Mechanism of ORKÖY | No. of land-based solar PV plant projects (each 100 kW) implemented | 0 | 2 | *2* | | 5 |

[20] One with governmental stakeholders and one with financial sector stakeholders.

| Project Strategy | Performance Indicator | Baseline | Target | Status of Target Achieved | Evaluation Comments | Rating [19] |
|---|---|---|---|---|---|---|
| successfully finances four Solar PV demonstration projects (each up to 100 kW in total) are setup in forest villages, using either individual household and/or cooperative models | No. of regions involved household rooftops where solar PV installed | 0 | 200 | *255* | See Paras 80 to 85 | 5 |
| | Total installed capacity of the projects (kWp) | 0 | 600 | *646 kWp* | | 5 |
| | No. of villages where pilot solar PV are being installed | 0 | 19 | *27* | | 5 |
| **Output 2.1:** Business plans & feasibility studies prepared for land-based solar PV installation and for rooftop-based solar PV installation demonstration projects in forest villages | No. of project reports prepared and approved | 0 | 2 | 4 feasibility studies were prepared by GUNDER by 2019 for individual households and cooperative model for solar PV systems for 4 pilot villages. | | |
| **Output 2.3:** Case studies on each of the Demonstration Projects | No. of case studies prepared | 0 | 2[21] | *2* | | |
| **Output 2.4:** Short video documentary on the demonstration projects | No. of video spots published | 0 | 1 | *1* | | |
| **Overall Rating – Outcome 2** | | | | | | **5** |
| **Outcome 3.1:** Sustainable Energy Financing Mechanism of ORKÖY successfully provides soft loans to contribute to the deployment of at least 30MW of solar PV during project lifetime | Amount of reduced CO2 emissions from the power sector (compared to the project baseline) by EOP, tons $CO_{2eq}$ | 0 | 28,750 | 1,886 tons $CO_{2eq}$ | See Paras 88-97 | 4 |
| | Cumulative installed capacity of grid-connected PV systems (kWp) | 0 | 30,000 | *3,487 kWp* | | 4 |
| | Cumulative total electricity generation from installed grid-connected PV systems (kWh/year) | 0 | 47,520,000 | *3,238,210 kWh/year* | | 4 |
| **Output 3.1:** National Awareness Raising Programme (NARP) for ORKÖY Sustainable Energy Financing Mechanism addressing forest village end-users and cooperatives | NARP is developed | None | NARP developed by end of 2019 | Lessons learned from different regions were documented and presented in workshops and trainings. However, NARP for forest villagers became redundant as there was strong demand from forest villagers for the Project. | | 5 |
| **Outcome 3.2:** Sustainable Energy Financing Mechanism of ORKÖY has in place systems for M&E, quality | MRV system developed | None | End Year 1 MRV system, quality standards and | A rudimentary MRV system has been developed but not yet institutionalized | See Para **Error! Reference** | 5 |

[21] This will include two studies: one for the 2 villages with land-based solar PV projects and second study for the rooftop solar PV projects in 19 villages.

| Project Strategy | Performance Indicator | Baseline | Target | Status of Target Achieved | Evaluation Comments | Rating [19] |
|---|---|---|---|---|---|---|
| standards, and certification systems and training programmes | Quality standards developed | None | certification scheme developed in early 2020 | Quality standards were imposed by TEDAS requirements | **source not found.** | 5 |
| | Certification scheme implemented | None | | Certification scheme was supervised in accordance with Turkish standards | | 5 |
| **Output 3.3:** National workshops held to promote the solar PV training manual targeting solar PV value chain (ORKÖY officials, installers, distribution companies) | • No. of dissemination events<br>• No. of involved persons/entities<br>• Residential rooftop solar PV manual for ORKÖY staff<br>• Workshop material for the 4 different workshops (ORKÖY staff, OGM local staff, installers and distribution companies) | • None<br>• None<br>• None<br>• None | • 12[22]<br>• 400<br>• 1<br>• 4 | • Several dissemination events, mainly site visits<br>• More than 1,400 persons involved<br>• 1 residential rooftop solar PV manual produced<br>• Workshop material for ORKÖY staff, OGM local staff, installers and distribution companies | | |
| **Output 3.6:** Workshops with financial sector stakeholders to consult, build familiarity and support finance to residential rooftop solar PV | • No. of events organized<br>• No. of involved institutions | • 0<br>• 0 | • At least 3<br>• At least 5 | • Initially planned for October 2022, this roundtable meeting is likely to occur after the EOP due to prolonged recruitment process for the consultant | | |
| **Output 3.7:** Project Website - Practical Guide to Investing in Residential Rooftop Solar PV in Türkiye | Web site developed and updated | 0 | Website developed by end of 2019 | There is no dedicated Project website. Though GDF has already included Solar PV information to their web site, a micro website is to be developed under the main GDF website. | | |
| **Output 3.8:** ITMO trade model setup for carbon market for residential rooftop solar PV project | The trade model developed | None | Trade model delivered by late 2021 | No activity on trade model developed. | | |
| **Overall Rating – Outcome 3** | | | | | | **5** |

[22] This will include 4 regions and 4 target groups.

68. The Project has faced significant challenges from 2016 to mid-2019, associated with turbulent political periods (including an attempted coup d'état), and governmental changes (including a national election with revision of cabinet in 2017, shift of governance mechanism to presidency system in 2018). In 2019, the Project faced major delays due to significant governmental restructuring including changes to the Implementing Agency of the Project, the GDF, and major changes in policy and regulatory framework on renewable energy. These changes eliminated most of the uncertainties of the Project strategy moving forward. This included new National Framework legislation on renewable energy published on 12 May 2019, where land-based PV installations using the RE cooperative model were no longer considered advantageous to the GoT, with a renewed focus placed on encouraging small-scale rooftop solar PV systems with new legislation based on net metering principles. With RE cooperatives not allowed to sell electricity to the grid in 2019, the payback period of these schemes became too long and not feasible. This justified the shift from land-based to roof-top PV installations. GDF was in-line with this new strategic approach with the Project poised to boost and achieve intended results.

69. With regards to the land-based solar PV installations, land acquisition, grid connection agreements and relevant permits were already approved for 3 land-based pilot sites, prior to legislation change in May 2019. After the legislation change, the PIU made the decision to continue with 2 land-based pilot solar PV demos to gain experience on community-based renewable electricity production. The 2 contracted on-grid land based 119 kWp PV systems were completed, with both of them connected to the national grid in February 2020 with the electricity generation data and the $CO_2$ emission reduction calculations documented by the MRV system. These installations helped forest villagers use electricity more cost effectively, using surplus money to cover various needs of their villages. Moreover, the villagers are also employed by the village cooperatives for maintenance and cleaning of PV plants.

70. The PIU rapidly adapted to the new legislation, issuing tenders for on-grid roof-top PV installations for 1 pilot site by 3Q 2019, and completing the work by mid July 2020, after a 3-month suspension of work due to the COVID-19 pandemic. Another tender for on-grid roof-top PV system was issued in June 2020 for 18 cities (255 households) totaling 408 kWp with work starting in July 2020 and completed in late 2021, in the roof-top pilot phase of the Project. The Project succeeded to initiate the co-financing of the PV systems, a major achievement. With the support of local GDF personnel, the benefits of on-grid connected roof-top PV systems were well communicated with forest villagers, and the pilot roof-top PV projects' successes were observed by them as well. Thus, demand to the PV systems on forest villagers' side was higher than it was expected before.

71. With the completion of the roof-top pilot phase, GDF supported 551 houses in 2021 and 684 houses in 2022 (1.65kWp to 2.2kWp) by co-financing roof-top solar PV installations of 1252 kWp in 2021 and 1589 kWp in 2022. There are also GDF plans to support 4,000 households (with GDF finance only), whose PV capacities will vary between 2.2 kWp to 3.2 kWp, with their own funds for 2023. With these 5,236 households, the total installed PV capacity will be expected to exceed 13 MW by the end of 2023. This was the achievement notwithstanding the challenges during the 2020 to 2022 period (including the COVID-19 pandemic, economic crisis, inflation, exchange rate fluctuation in 2021, increasing energy prices, and disruptions of supply chains).

72. The indicator of "Cumulative number of created job positions by EOP for forest villagers related to solar PV" was designed on the assumption of creation of 1.5 jobs per 100 kW of the cooperative

model land-based PV at villages. Due to legislative changes favoring roof-top solar PV, the number of job positions created by local contractors and maintenance firms is low but cannot be verified.

73. The EOP target of 28,750 $tCO_{2eq}$ was deemed to be not achievable during Project as a consequence of the policy shift from land-based PV plants to roof-top PV installations. However, the financial support mechanisms for roof-top solar PV implementation will continue to be supported by GDF via their ORKÖY Credit mechanism after the EOP. This is by far the most important outcome of the Project which has been assured by the ORKÖY legislation and the SEFM Unit issuing the soft-loans. As of 31 December 2022, 1,886 $tCO_{2eq}$/yr of GHG emission reductions were realized.

### 3.3.2 Component 1: Policy & Institutional Framework for supporting sustainable energy financing mechanism for solar power in forest villages

74. The intended outcome of Component 1 was "enhanced enabling policy and environment, within which ORKÖY's SEFM continues to operate beyond the lifetime of the project". Major changes in the GoT's governance system in early 2019 included the merging of two ministries related to the Project, and the changing of GDF's deputy general director, head of department, deputy head department and the section manager related to the Project, and a new structure of the PSC with decisions left to the General Director of GDF. The 2019 PSC meeting rendered a decision to establish the Sustainable Energy Finance Mechanism (SEFM) unit under ORKÖY-GDF with the deputy head of department of ORKÖY, 2 section managers and an engineer forming the SEFM unit which was to be supported by ORKÖY personnel in their regional offices. Capacity building activities to familiarize GDF personnel with the Project and solar PV were conducted throughout the latter part of 2019 that included trainings and study tours.

75. With the new National Framework legislation on renewable energy encouraging small-scale rooftop solar PV systems based on net metering principles, the ORKÖY-PV Unit was formed under the ORKÖY Department of General Directorate of Forestry to provide GDF funds for roof-top PV installations to forest villagers. The Unit identified 255 households by early 2020 to implement the pilot phase of solar PV systems where funding for the installation was 100% GEF grant. By late 2021, SEFM Unit was fully operational with an additional 551 households based on 33% GEF grant, 13.5% ORKÖY grant, and 53.5% ORKÖY soft loan, completing the first co-financed on-grid solar PV connection. The Unit also started to convey their experiences to the local GDF personnel and beneficiaries as the number of grid connected PV systems increased. The SEFM unit proceeded to provide financing for 684 households for 2022 for on-grid solar PV installation period, and have identified another 4,000 forest village households for 2023.

76. Technical reports were prepared for the 2 land-based pilots as well as the roof-top installations for the 4 pilot regions. The reports for the 4 pilot regions included tests for roof-top installations, each region with 30 households and 4 types of roof-top PV systems (1.2 kWe, 2 kWe, 2.8 kWe and 3.2 kWe) selected by GDF in consultation with UNDP. The 4 regional provinces were Elazığ, Çorum, Bolu and Manisa representing different regions of Türkiye in southeast, central north, northwest and west. The SEFM Unit decided that no more technical reports would be prepared after 2022 as the existing reports provide a good sample of solar PV installations for the country.

77. The new legislation and regulations on unlicensed electric power generation (which includes rooftop power generation) issued in May 2019, enabled net metering of renewable energy for individual consumers to produce renewable electricity based on their installed electric consumption capacity.

This favored roof-top PV installations. With all stakeholders in the Turkish PV market welcoming the new legislation, the new electricity legislation helped the Project to achieve its target for forming a national framework. Due to adaptive management undertaken by the PIU to harmonize ORKÖY financial support regulations with the revision of renewable energy legislation in the National Framework of May 2019, the Project successfully shifted to the roof-top PV installations. It is worth noting that the financial support from forestry sector to solar PV installations was the first ever created in Türkiye and assured past the EOP via regulation on ORKÖY financial support. Though regulations were first published in official gazette in 2017, it is important to highlight that harmonization of ORKÖY financial support regulations with the National Framework not only created new financing flows to solar PV, but also an affordable and reliable soft-loan mechanism for the poorest segment of the society in Türkiye.

78. It is also worth noting that limits were imposed on the solar generation capacities to prevent commercialization of RE generation. There was a tendency for beneficiaries and investors to keep adding generation capacity, and turn rooftop solar PV installations into a commercial venture rather than meeting their own electricity needs. The emphasis of the ORKÖY SEFM program was to only help the energy needs for only those in need. Land-based solar PV was permitted as long as it met the needs of the users. Land-based solar PV can also be setup for industries, municipalities, public authorities, and agricultural communities for irrigation. Unlicensed solar PV can also be setup on Treasury Land, and not on land near the place of usage. Applications are being received for storage facilities for licensed energy generation, expanding the scope for land-based solar PV installations. With increases in energy costs, the pandemic and the rising costs of other goods and services, there has been a focus on policy, institutional framework, and a sustainable energy financing mechanism for renewable energy in efforts to make the country more energy independent.

79. In conclusion, the results of Outcome 1.1 can be rated as **satisfactory** in consideration that an enabling environment with appropriate policies and institutional frameworks has been setup for supporting a sustainable energy financing mechanism for solar power in forest villages.

### 3.3.3 Component 2: Solar PV demonstration Projects

80. The intended outcome of Component 2 is “Sustainable Energy Financing Mechanism of ORKÖY successfully finances four Solar PV demonstration projects (each up to 100 kW in total) are setup in forest villages, using either individual household and/or cooperative models”. With the 2019 revised strategy to align with the changes in renewable energy regulations, the number of 4 land-based pilots was decreased to 2, and roof-top solar PV installations were increased to 255 households. These installations were financed by a 100% GEF grant. The deployment of solar PV for the pilot phase can be summarized as follows:

- 238 kWp is land-based solar PV in 2 villages;
- 408 kWp is roof-top solar PV in 27 villages in 18 provinces with more than 255 roof-top solar PV installations.

81. Land based solar PV implementation was covered by the Project including all approval fees (as a part of the scope of the contractor). Two 100 kWe solar farms were constructed in Afyon’s Kulak Village and Konya’s Gökbudak Village by the end of 2019 with their on-grid connection agreements completed by early 2020. These installations have been fully operational and uploading electricity to the national grid since February 2020. In Konya’s Gökbudak Village, the wife of the headman of the

village donated her land located to the village for the land-based solar PV installation. Sites close to Gökbudak were deemed not feasible due to infrastructure deficiencies forcing them to setup the land-based solar plant 20 km from the village. The installation was done in 2019 with no pandemic related challenges.

82. Funding was required for cooperatives which was financed by the villagers. Cooperatives are a pioneering initiative in Türkiye that forced villagers to be organized. The problem with cooperatives is that most members are old. Though electricity demand was not too high for houses benefitting from the land-based solar PV installation, the use of other appliances has increased, in some cases generating more income, such as the use of more milking machines, refrigerators and freezers. The successful cooperative in Gökbudak consists of a president, a deputy president and a vice-president at the top of the cooperative with expenditures in the cooperative having to be signed off by all 3 persons with auditors monitoring expenditures. Though trust is still an issue for 15 households out of 50 in the cooperative, incentivizing more villagers to join cooperatives is viewed as a solution to replicating this cooperative model to generate greater revenue streams for cooperatives members.

83. For roof-top installations in the 100% GEF grant phase, the following installations were completed:

- in Bolu with 30 houses (60 kW) with on-grid connection by April 2021;
- in another 18 provinces with 225 houses (300 kW in 22 villages) with on-grid connection by December 2021.

In total, there were 255 households in 22 villages in the pilot phase of the Project. With excess funds from the decrease in land-based PV system installations, GEF funds were able to be diverted to another 100 roof-top PV systems included in the 255 households. These additional pilot installations focused on increasing the good examples of roof-top solar PV installations in several regions of Türkiye to increase the demand with forest communities. The approval procedures were slowed down by COVID-19 pandemic with all approvals completed by September 2021. COVID-19 related restrictions delayed most of the communication activities to be completed on time, which were crucial to introduce PV systems to forest villagers. Time lost during COVID-19 pandemic was somewhat recovered during 2021 by periodic visits to local forestry directorates.

84. The initial experience with distribution companies has been excellent. No problems with installations and billings, and positive feedback from villagers after 1 year of installations with demands for more installations. Net metering is done remotely with RE being consumed at the households with no economic burden on the beneficiaries or the distribution company. With data entered onto the system, the distribution company performs remuneration to generators if necessary and through EMRA. Distribution companies have excess capacity to do applications and installations of solar PV for forest villagers. Emerging risks to this process involve rising costs and related global supply chain issues.

85. The experience of beneficiaries with the solar PV installations has also been excellent. Out of the 10 villagers interviewed, most of them first heard of the Project through their village heads or GDF personnel at information sessions[23]. Some beneficiaries knew of solar PV technology through the internet that solar panels and energy storage were costly, and there was the potential for solar PV

[23] Interviews with 10 villagers was considered sufficient as a sample size. There was an overall satisfaction of the solar PV installation process and the opportunity for forest villagers to save money on electricity.

to drastically reduce their electricity bills. Many of the beneficiaries had confidence in the GoT's statements on RE. Unfortunately, there was no gender disaggregated data on how men and women were informed about the Project.

86. In conclusion, the results of Outcome 2 can be rated as **satisfactory** in consideration that the targets for land-based and roof-top solar PV installations, the total installed capacities and the number of villages where pilot solar PV are being installed were met or exceeded. The TE Team have verified and confirmed the evidentiary documents that support the attribution.

### 3.3.4 Component 3: Replication and scaling up – Enhancement of the sustainable energy financing mechanism

87. The intended outcomes of Component 3 are:

- Outcome 3.1: Sustainable Energy Financing Mechanism of ORKÖY successfully provides soft loans to contribute to the deployment of at least 30 MW of solar PV during project lifetime; and
- Outcome 3.2: Sustainable Energy Financing Mechanism of ORKÖY has in place systems for M&E, quality standards, and certification systems and training programmes.

88. As part of the revised strategy, the Project adopted a 3-stage approach for scaling-up roof-top solar PV installations:

- the first was to be 100% financed by GEF (see Section 3.3.3);
- the second is a co-financed solar PV credit as joint funding from GEF project and ORKÖY budget consisting of 33% GEF grant, 13.5% ORKÖY Grant, 53.5% ORKÖY Soft Loan (with 0% interest and 7 years of tenor). This was completed in December 2022 with US$2.294 million from the ORKÖY budget to finance 1,235 households in 129 villages with installation of over 2,841 kWp;
- the third co-financed solar PV credit is the ORKÖY Credit of 20% ORKÖY Grant and 80% ORKÖY Soft Loan (with 0% interest and 7 years of tenor). Over 10,000 kW are to be installed in 4,000 households in 81 provinces in 2023.

89. GDF personnel took an active role in the scale-up phase with the PIU to communicate advantages of the roof-top PV systems by making regular site visits. The hands-on trainings to local GDF personnel also helped to increase the awareness on the PV systems. Benefits of the solar PV systems were well accepted and acknowledged by forest villagers. With the success of the first scale-up phase and the subsequent second pilot phase, the GDF committed to continuing soft loan support to forest villagers for roof-top PV systems after the EOP and as per national official gazette published in 2017. Technical and financial reports prepared by GDF have only augmented the case for increasing the budget for soft loan support.

90. Many of the distribution companies are advocates of the ORKÖY-SEFM Project because the Project is helping the poor meet their energy needs. As such, there have been no challenges or issues with net metering in forest village solar PV installation, starting with the application for ORKÖY's SEFM which takes 2 to 5 months, and notwithstanding minor delays experienced in billings and credit payments during the COVID-19 pandemic. A less complicated system for registration of forest villagers exists with the distribution companies, removing one less administrative barrier to forest village solar PV installations.

91. TEDAS is the regulatory agency and a government-based umbrella organization of distribution companies that oversees RE regulations but is operated by private companies. TEDAS also has the right to delegate application permit procedures to private distribution companies because of a backlog when TEDAS was approving the applications. Private distribution companies initially did not want this task due to high administrative costs of small-scale forest villager solar PV applications. TEDAS and EMRA are responsible for auditing private distribution company operations.

92. With increases in electricity prices, TEDAS are also trying to raise awareness amongst forest villagers of solar PV installations and net metering, which is good for the environment with quick payback. Conferences and workshops have been organized for this purpose, and there is a website for raising awareness of ORKÖY's SEFM. TEDAS are currently lobbying for more solar PV applications (such as agro-solar PV) and more solar PV cooperatives in various districts. Distribution companies, however, are of the opinion that legislative barriers to other solar PV applications will be easier to remove since the Project demonstrates self-consumption and not generating revenue. This will make RE easier to get approved and installed if the Project continues in the future. Increasingly, however, rising costs and supply chain issues will affect some solar PV installations.

93. The experience of solar manufacturers, engineering companies, universities and private companies in supporting solar PV installations in forest villages has been excellent. GUNDER, the organization unifying solar PV suppliers, manufacturers and consultants and overseeing Project work for forest villagers and their solar PV installations, have seen their membership soar to 300 companies (including 30 manufacturing companies) as a result of the new net metering policy. GUNDER provides:

- lobbyists for legislation;
- trainers for GUNDER members (especially EPC companies);
- technical assistance to the solar PV application process;
- technical assistance for solar PV installations for forest villagers and land-based projects;
- certification services for solar PV equipment; and
- experience from lots of European projects.

94. After the Project installations (ranging from 1.5 kW with GDF financing to 3.5 kW financed by GDF and their own equity), many beneficiaries became aware of on-grid connections and net metering that makes solar PV technology cost-effective. Many of them had applied for 50% GDF loans with 50% equity with a 0% interest rate, a 5-to-7-year payback of the loan, and a 1–2-year grace period. Some even added solar PV capacity (between 0.5 and 1.0 kW) at their own cost. Aside from minor delays due to delays in getting the call letter from the distribution company and increasing costs of supplies and installation, there were no challenges or issues with installation, even during the pandemic. With reduced or no electricity payments since the installation, beneficiaries are using more household appliances such as milking machines in a more comfortable way. Males would increase their use their welding machines or electronic screwdrivers. Women would increase their usage of hair driers, vacuum cleaners and electric stoves and ovens. The Project also provides opportunities for forest villagers to train as an installer of solar PV equipment.

95. Finance, however, is the most significant barrier to deployment of solar PV due to rising costs and supply chain issues. Türkiye is experiencing several disruptions to its economy including price increases of the PV system, raw material price increases and on-going computer chip crises. Though the PIU was ready for a decreased number in PV demands from villagers, the number of forest

villagers asking for on-grid connected PV systems has only increased. The villagers recognized that the sooner they install their PV systems, the sooner they would benefit as the energy prices started increasing. As such, there was a boom in the number of forest villagers demanding solar PV in 2022.

96. The engagement of IFIs in Türkiye is questionable. With Türkiye's interest rates hovering around 30-35%, related financial instruments are not eligible for financing rooftops installations. The affordability of loans from private banks is low given the prolonged payback period in the presence of interest rates with no grant blending. Costs for solar PV system installations has increased dramatically after the pandemic, emphasizing the importance of grant blending even further. The banks have indicated that their interest in the new legislation changes favoring rooftops should help them develop good financing products specific to individual rooftops. They have indicated their interest to learn from Project's findings and experience in establishment procedures, prices, electricity production, payment back periods and GHG saving in relation to installations. French AfD has proposed a US$12 million project for forest villagers which has not yet been confirmed (see Para 132).

97. There are also too many regulations being promulgated, many of which do not apply and are not flexible. This may affect the scale-up of solar PV in forest villages and other applications:

- many roofs of forest villagers were in poor condition forcing a previous regulation to support land-based projects;
- land-based solar PV was then abandoned due to administrative reasons and issues establishing cooperatives, and further restrictions that land needs to be allocated at an appropriate cost and is not appropriate for farming. Forest villagers may not find this to be feasible;
- there is a push for a regulation where agriculture and solar panels can co-exist on the same land; panels provide shade for crops when there are droughts and heat domes that protects the crops from hot weather;
- another regulation is "watering the land" with the pumps for agriculture where the owner of the land can establish a land-based solar PV that is grid-based. This maybe a hard scenario to find.

98. Under the Project, an MRV system was developed to track $CO_2$ emissions avoided and renewable energy generated. However, it has only been used manually to calculate and track the energy production and GHG emission reductions of implemented pilot projects. GDF is planning to incorporate the system into their Forest Management System (ORBİS) to be able to regularly track the progress in emission reductions and renewable energy generation at the forest villagers' households under their provincial administrations. Initial contacts were made with GDF's IT department to explore expansion of the system. Once incorporated, a sustainable means of tracking RE generation and emission reductions will be ensured by UNDP over implemented solar PV interventions within the pilot component but also for installations beyond the EOP in the grant blended loan program to be executed by ORKÖY for forest villagers. The Project, however, has focused its efforts to scale-up even faster the number of beneficiary households with the Project having eliminated permit-related barriers. As such, the online MRV system is not expected to be achieved before the EOP.

99. In conclusion, the results of Outcomes 3.1 and 3.2 can be rated **moderately satisfactory** with the Project not achieving its intended GHG emission reduction targets and not institutionalizing quality standards, certification systems and an MRV system, but securing a financing mechanism from GDF to sustain the installation of roof-top solar PV for forest villagers well into 2023 and beyond. The

Project has managed to create demand amongst forest villagers. With GDF providing a maximum 20% grant from their own resources for PV systems as permitted by their legislation, GDF are scheduled to mobilize government funds as a part of official ORKÖY Credit mechanism in 2023 and beyond. As the GDF secures funding from government budget with possible supplement from IFIs, the 30 MW installed capacity target has a stronger likelihood of being exceeded at least 2 years after the EOP. The Evaluator has verified and confirmed the evidentiary documents that support the attribution.

### 3.3.5 Relevance

100. The ORKÖY-PV Project is **relevant** to the development priorities of Türkiye related to a number of national strategies and plans including:

- Türkiye's Seventh National Communication Under the UNFCCC 2018 where sectoral policies, measures and various pieces of renewable energy legislation are quoted;
- Turkish 11th Development Plan (2019-2023) that sets the target of renewable electricity generation of 38.8% for 2023;
- MoENR's 2019-2023 Strategic Plan that proposes to increase the share of domestic renewables to 59-65 % by 2023 including solar PV at 10,000 MW;
- Climate Change Action Plan 2011-2023 that sets up GHG emission decrease policies and measures by ensuring that the share of renewable energy in electricity production is increased; that at least 20% of the annual energy demand of new buildings met via renewable energy resources as of 2017; and by developing capacity by 2015 to increase utilization of renewable energy resources;
- National Energy Efficiency Action Plan 2017-2023 which amongst several other actions, provides the necessary legislative framework for improving the use of renewable energy resources in buildings, and promote directly or indirectly low-carbon, sustainable, environment friendly buildings; and
- the TEİAŞ 2019-2023 Strategic Plan where there are targets for renewable energy of 38.8% by 2023.

101. The Project is also relevant to:

- the UNDP CPD that will strengthen private sector engagement in coordination with the Government through a platform approach, and innovative financing models to address renewable energy and energy efficiency, specifically Output 3.3: Solutions developed, financed and applied at scale for energy efficiency and transformation to clean energy and low - carbon development;
- the UNSCDF Priority Area 3 – Climate Change, Sustainable Environment and Livable Cities: This priority area addresses reduction of greenhouse gas emissions through renewable energy and energy efficiency, climate change adaptation, zero waste approach, responsible production and consumption, sustainable use of natural resources, disaster risk reduction and emergency management. Specifically, Cooperation Framework Outcome involving UNDP #3.1: By 2025, all relevant actors take measures to accelerate climate action, to promote responsible production and consumption, to improve the management of risks and threats to people, and to ensure sustainable management of the environment and natural resources in urban and ecosystem hinterlands;

- SDGs #1 (No Poverty), #3 (Good health and well-being), #5 (Gender Equality), #6 (Clean water and sanitation), #11 (Sustainable cities and communities), #12 (Responsible consumption and production communities) and #13 (Climate action);
- GEF-5 focal areas of Outcome 3.1: Favourable policy and regulatory environment created for renewable energy investments, and Outcome 3.2: Investment in Renewable Energy Technologies increased.

102. The ToC applied to the Project is relevant to promoting investment in renewable energy technologies and expanding access to environmental and energy services for the forest villagers within the framework of "leave no one behind agenda". The Project objective, outcomes and outputs are clear, practical and feasible within its frame, clearly addressing forest villagers as well as government personnel, distribution companies and installation companies. There were no lessons from other projects incorporated into the ORKÖY-PV Project design (Para 41).

103. Though the Project was designed as rights-based and gender sensitive, the Project made minimal efforts to include gender dimensions on solar PV installations in forest villages (Para 44). There were linkages to other Project interventions in Türkiye to create synergies (Para 43).

104. Thus, it can be concluded that the ORKÖY-PV Project is strongly **relevant** to the development priorities in Türkiye.

### 3.3.6 Effectiveness

105. The effectiveness of the ORKÖY-PV Project has been **satisfactory** in consideration of:

- the legislative changes made in 2019 to favor rooftop solar PV installations;
- the successful piloting of 255 rooftop solar PV installations using 100% GEF grant that spread awareness of successful solar PV installations inn forest villages;
- the continued high demand for rooftop solar PV despite the reduction in GEF grants and an increase in loan amounts.

106. Although the Project did not achieve the objective-level targets, most of the key outcomes were achieved, namely:

- the enhanced enabling policy and environment allowing ORKÖY's SEFM to operate beyond the EOP (all 7 outputs delivered);
- ORKÖY's SEFM successfully financing several solar PV demonstration projects in forest villages (2 land-based plants and several hundred individual households) (all 3 outputs delivered); and
- ORKÖY's SEFM successfully providing soft loans to contribute to the scale-up of deployment of solar PV during the Project's lifetime to the extent that it is possible that 3 MW of installed solar PV capacity will be attained in just over 2 years' time (output partially delivered);
- The M&E system for the SEFM has been setup but not institutionalized (2 out of 4 outputs delivered) (Para 98).

Achievement of objective level targets would have been significant under the pre-2019 legislation. However, the change in legislation to rooftop solar PV installations translated into a slower pace of solar PV installations, leading to indicators such as "Cumulative number of created job positions" having less likelihood of being achieved.

107. The Project partnership strategy with UNDP has been appropriate and effective (Paras 52-53, 62-63). The greatest achievements by the Project has been the successful SEFM financing of several rooftop solar PV installations in forest villages. Forest villagers realize the money that can be saved through ORKÖY's SEFM. The Project or efforts beyond the Project can build on or expand on these achievements by keeping demand high with forest villagers applying for credit (Para 65, 84 and 95).

108. The Project did not achieve institutionalization of M&E system for the SEFM due to the Project's delayed RE legislation in 2019 and the focus on efforts to scale-up even faster the number of beneficiary households with rooftop solar PV in 2021 and 2022 (Para 98). The Project could not have overcome this issue given that the country was not ready for ORKÖY's SEFM as outlined in Para 68. In the context of the lack of achievement of objective-level indicators and outputs, there are no alternative strategies that could have been implemented to overcome this issue.

109. Management and implementation of the Project was participatory with all target groups and stakeholders, contributing towards achievement of the Project objectives. Forest villagers were closely consulted with respect to locations and numbers of solar PV panels to be installed. Moreover, the Project been appropriately responsive to the needs of solar PV companies, sub-contractors, and distribution companies (Para 49). Wherever practical, the Project also contributed to the well-being and human rights of vulnerable groups ("leave no one behind agenda") including women and successfully integrated a human rights-based approach (Para 120).

110. The grant blended ORKÖY-PV soft loan programme has been effective in improving socio-economic standing and energy savings of forest villagers. There are reports from all beneficiary interviews of the ability to use additional household appliances and reductions in electricity bills. These benefits have created awareness in forest village households that do not have solar PV to consider investment in a solar PV system. The COVID-19 pandemic had a major effect on the delaying achievement of Project results, notably on the targets on GHG emission reduction, installed capacity, and electricity generated from installed grid-connected PV systems. The awareness created for the SEFM and its benefits was mainly by word-of-mouth of forest villagers, and secondarily, visits from ORKÖY field officers.

### 3.3.7 Efficiency

111. The efficiency of the ORKÖY-PV Project has been rated as **moderately satisfactory** in consideration of:

- the low level of financial, human and time resources spent kicking off the Project from August 2016 to May 2019;
- the quick conversion of GEF resources to piloting rooftop solar PV installations from September 2019 to December 2022. Even though the Project took 6.5 years to complete, the Project completed almost all of its activities within a 3.25 year period;
- the unit abatement cost of US$2,004/tonnes $CO_{2eq}$ reduced (based on 1,886 tonnes $CO_{2eq}$ reduced at US$ 3,780,000).

112. After 2019, Project management worked very well to achieve Project results (Paras 49-53, 62-64). After mid-2019, there has been economical use of financial and human resources with resources (i.e., funds, staff, time, expertise) allocated strategically and cost-effectively to achieve outcomes.

Project funds and activities been delivered in a timely manner after 2019 (Paras 68-71). M&E systems were utilized by UNDP to ensure effective and efficient Project implementation (Paras 57-61).

### 3.3.8 Overall Project Outcome

113. The overall ORKÖY-PV Project outcome can be considered as **satisfactory**. Even though objective-level targets were not achieved by the Project, the Project has broken through the key technical bottlenecks of solar PV installations in forest villages, augmenting the deployment model for national and local solar PV development paths and policy recommendations, and securing a financial commitment from GDF towards solar PV for forest villagers. This was achieved by carrying out pilot solar PV installations in 1,490 households and 2 land-based solar PV installations with a 100% GEF grant financing scheme which was moved to a 33% GEF grant, 13.5% ORKÖY Grant, 53.5% ORKÖY soft loan, and which is being moved in 2023 to a 20% ORKÖY Grant, 80% ORKÖY soft loan.

114. The Evaluator confirms the existence of evidence that the Project has achieved most of its outcomes but not its objective (see Table 6). Specific achievements[24] have been verified from reports and the TE interviews with the PIU, MoFA, GDF, ORKÖY, Project advisors and Project beneficiaries in November 2022.

### 3.3.9 Sustainability of Project Outcomes

115. In assessing sustainability of the ORKÖY-PV Project, the evaluator asked "how likely will the Project outcomes be sustained beyond Project termination?" Sustainability of these objectives was evaluated in the dimensions of financial resources, socio-political risks, institutional framework and governance, and environmental factors, using a simple ranking scheme:

- *4 = Likely (L):* negligible risks to sustainability;
- *3 = Moderately Likely (ML):* moderate risks to sustainability;
- *2 = Moderately Unlikely (MU):* significant risks to sustainability; and
- *1 = Unlikely (U):* severe risks to sustainability; and
- *U/A = unable to assess*.

Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions. This is summarized on Table 8.

116. *The overall ORKÖY-PV Project sustainability rating is moderately likely (ML).* This is primarily due to the moderate risk that installers of solar PV will encounter rising costs and supply chain issues during their future deployment of solar PV, rooftop or land-based. In the long-term, forest villagers will benefit from the SEFM provided there is sufficient GDF budget for the SEFM and donor funds providing an added layer of financial security to the SEFM; these aspects are not fully confirmed. This may affect the pace of solar PV deployment and the post-Project GHG emissions and installed capacity. It is possible that IFIs may offer financial instruments in future. However, with interest rates

[24] Specific achievements such as the appointed SEFM unit, the published RE National Framework, model contract published and approved by ORKÖY, technical report on grid capacity and requirements for grid-connected PV installations, business plans and feasibility studies for land-based solar PV installation and rooftop-based solar PV installation demonstration projects in forest villages, case studies, residential rooftop solar PV manual for ORKÖY staff, and workshop material for ORKÖY staff, GDF local staff, installers and distribution companies. The 3,238,210 kWh/year of cumulative total electricity generation from installed grid-connected PV systems can be counted as an achievement that did not meet its target of 47,520,000 kWh/year.

**Table 8: Assessment of Sustainability of Outcomes**

| Actual Outcomes (as of 31 December 2022) | Assessment of Sustainability | Dimensions of Sustainability |
|---|---|---|
| **Actual Outcome 1.1**: The enabling policy environment for solar PV deployment for forest villagers has been enhanced, within which ORKÖY's sustainable energy financing mechanism is proposed to operate beyond the lifetime of the Project. | • *Financial Resources:* Financing for the enabling policy environment for solar PV deployment for forest villagers is available;<br>• *Socio-Political Risks:* No risk to the installers of solar PV equipment or their beneficiaries;<br>• *Institutional Framework and Governance*: GDF have been supportive of the forest villager's solar PV enabling environment. Legal frameworks, policies and governance structures and processes are in place to sustain Project benefits;<br>• *Environmental Factors:* No environmental risks.<br>***Overall Rating*** | 4<br>4<br>4<br>4<br>**4** |
| **Actual Outcome 2.1**: Sustainable Energy Financing Mechanism of ORKÖY successfully finances 2 land-based solar PV demonstration projects (each up to 100 kW in total) complete with cooperatives, and 1,490 individual household rooftop solar PV demonstrations in forest villages, on a net metering scheme. | • *Financial Resources:* There are have been no issues with financing of these solar PV demonstrations;<br>• *Socio-Political Risks:* There are no socio-political risks to these solar PV demonstrations;<br>• *Institutional Framework and Governance:* Governments, local and national, are encouraging their deployment as demonstrations;<br>• *Environmental Factors:* WEEE management of solar PV equipment and other electronic devices not considered.<br>***Overall Rating*** | 4<br>4<br>4<br>3<br>**4** |
| **Actual Outcome 3.1**: The Sustainable Energy Financing Mechanism of ORKÖY has successfully provided soft loans that contribute to the deployment of 1.9 MW of solar PV during Project lifetime. | • *Financial Resources:* GDF have committed to providing continuing support for the SEFM. However, financing is potentially an issue for the pace of deployment with rising costs and global supply chain issues affecting the pace of solar PV deployment. Donor funds potentially provide more financing security if approved;<br>• *Socio-Political Risks:* Forest villagers will benefit from the SEFM in the long-term with no risk that level of stakeholder ownership will be insufficient to stifle Project outcomes and benefits. However, the pace of solar PV deployment may affect solar installers with rising costs and supply chain issues;<br>• *Institutional Framework and Governance:* No risks as the policies are encouraging their deployment using ORKÖY's SEFM;<br>• *Environmental Factors:* WEEE management of solar PV equipment and other electronic devices not considered.<br>***Overall Rating*** | 3<br>3<br>4<br>3<br>**3** |
| **Actual Outcome 3.2**: ORKÖY's SEFM has in place systems for M&E, quality standards, and certification systems and training programmes. | • *Financial Resources*: No financial risks;<br>• *Socio-Political Risks*: Stakeholders embracing net metering which permits government to monitor their energy consumption;<br>• *Institutional Framework and Governance:* Moderate risk from the lack of MRV institutionalization to net metering which permits government to monitor their energy consumption;<br>• *Environmental Factors:* No environmental risks.<br>***Overall Rating*** | 4<br>4<br>3<br>4<br>**3** |
| | ***Overall Rating of Project Sustainability:*** | **3** |

hovering between 30-35%, the IFIs have indicated that their interest is in developing good financing products specific to individual rooftops, and learning from Project's findings and experience in establishment procedures, prices, electricity production, payment back periods and GHG saving in relation to installations. There is no guarantee of financial assistance from IFIs. However, once financing is secured, there is no risk that the level of stakeholder ownership will be insufficient to stifle Project outcomes and benefits to be sustained. A well-designed and well-planned exit strategy should consist of several years of financial guarantees for the SEFM.

### 3.3.10 Country Ownership

117. In addition to the ORKÖY-PV Project being linked to development priorities of Türkiye (Para 100), country ownership is demonstrated in Outcome 1 pertaining to new legislation and regulations on unlicensed electric power generation (which includes rooftop power generation) issued in May 2019 (Para 77), and the subsequent formation of the ORKÖY-PV SEFM Unit the ORKÖY Department of General Directorate of Forestry to provide GDF funds for roof-top PV installations to forest villagers (Para 75). After the 100% grant phase, the SEFM Unit successfully provided credit to forest villagers for rooftop solar PV installations taking an active role in the scale-up phase with the PIU (Paras 88-89).

### 3.3.11 Gender equality and women's empowerment

118. A Gender Screening and Action Plan for the Project was prepared in 2019 within the framework of UNDP's Gender SEAL Programme. Efforts were made to include gender dimensions with the Project's gender marker elevated to 2 from 1[25]. However, the COVID-19 pandemic placed restrictions on movements, and implementation of the Plan was limited. Furthermore, the Project has not provided any gender disaggregated data regarding solar PV development and usage. Therefore, it was not possible to confirm whether the Project achieved its gender objectives. The PIRs also do not provide any reports on gender insights. However, the Project has confirmed, through interviews, the positive impact it has had on women beneficiaries by allowing them to use household appliances without bearing the burden of higher electricity bills. This included using their washing machines, turning on water pumps, and using electric stoves and vacuum cleaners. The fetching of water from common water wells of the village was typically done by the women and the children.

119. A baseline study conducted at the beginning of the Project indicated that only 8% of title deeds of the houses belong to women. During the June 2021-June 2022 period, the ratio of ORKÖY Credit usage between women to men was 1 to 13, similar to the ratio of deed ownership in the villages. On-grid connection procedures are done on behalf of household electricity subscribers, who are mainly the deed owners. Accordingly, there is a correlation between deed ownership and on-grid PV system subscription. According to interviews with ORKÖY, their SEFM does not favor any gender or any disadvantaged group with every applicant having an equal chance during ORKÖY lotteries. However,

[25] To raise the gender marker from 1 to 2, the Project has already undertaken a detailed study on the socio-economics of the forest villages in the Mediterranean part of the country that details daily life of women in a forest village, serving as a basis for Action Plan implementation (http://www.tr.undp.org/content/turkey/en/home/library/environment_energy/orman-koeyluelerinin-sosyo-ekonomik-yaps.html). With the Project establishing 2-100 kW land-based solar PV systems as pilots owned and maintained by the village cooperatives, the Project through ORKÖY personnel was to promote job opportunities to women under the cooperatives for maintenance work while accounting for the role of women in decision making in the family. The Project was to collect disaggregated data whenever possible to reflect women's position and values, building off existing GDF efforts on gender issues.

the Project and ORKÖY reportedly continues to focus on women's empowerment by encouraging women-only households to enter the ORKÖY lottery, and also the prioritization of women during their awareness raising and training activities.

### 3.3.12 Cross cutting issues

120. One of the most important cross cutting issues is the future of work and talent development for a transition to RE and a low carbon future. Before the Project's intervention, there were relatively few persons with the training, skills, or background who can properly evaluate, install and maintain solar PV equipment. There is a reported core of selected people including beneficiary villages that have supported solar PV training under this Project. This contributed to "leave no one behind agenda" that only includes the elderly. However, the Project has not done much to promote positive changes in gender equality and the empowerment of women. There were no known unintended effects emerging for women, men and vulnerable groups.

### 3.3.13 GEF additionality

121. The issue of GEF additionality is quite clear on the ORKÖY-PV Project. With GEF funds, there was assistance to:

- GDF to setup a "Sustainable Energy Finance Mechanism" Unit under the GDF-ORKÖY and make it operational;
- GDF and MFWA to prepare a National Framework on net metering for renewable energy that allows individual consumers to produce renewable electricity based on their installed electric consumption capacity. This favored roof-top PV installations;
- prepare technical reports for the second phase of pilot roof-top PV systems augmenting the business case for solar rooftop installations;
- provide technical and administrative assistance to pilot ORKÖY's SEFM to successfully finance 2 land-based solar PV demonstration projects with cooperatives and 1,490 households with rooftop solar PV installations;
- provide technical and administrative assistance establish and operationalize solar PV quality standards, certification systems, monitoring and evaluation systems, and training programmes for government personnel, engineering consultants, solar PV suppliers and manufacturers, and solar PV installers.

### 3.3.14 Catalytic/Replication Effect

122. The Project has had a catalytic effect. Through the 1,490 rooftop solar PV installations, there has been a groundswell of demands from several forest villages for the ORKÖY's SEFM. The Project also catalyzed solar PV concepts beyond ORKÖY's SEFM pilot schemes. There are discussions concerning GDF's commitment to continuing soft loan support to forest villagers for roof-top PV systems after the EOP and as per national official gazette published in 2017, as well as solar PV applications for irrigation cooperatives. This would involve solar panels for irrigation for gardens for olives, tomatoes, walnuts, peppers, not fields of crops. With electricity comprising 80% of the cost of the crops, solar PV can be a solution for pumping costs. There are also discussions amongst potential beneficiaries on reviving the solar water heater program that would essentially eliminate the use of wood and coal for water heating.

### 3.3.15 Progress to impact

123. The progress to impacts of the ORKÖY-PV Project are related to:

- the Project providing an enabling environment and basis for deployment of solar PV installations for forest villagers in rural and urban areas. The legislation for net metering of renewable energy facilitates individual consumers to produce renewable electricity based on their installed electric consumption capacity. This favors roof-top PV installations;
- the Project establishing a sustainable financing mechanism for renewable energy for poorer segments of society. The setup and operationalization of the SEFM Unit under GDF-ORKÖY will continue to support solar PV installations for forest villagers after the EOP;
- credible technical reports for the second phase of pilot roof-top PV systems augmenting the business case for solar rooftop installations;
- more than 1,490 solar PV installations that provides ample demonstrative evidence of ORKÖY's SEFM successful financing of forest villager solar PV installations. This makes the financing model piloted by the ORKÖY-PV Project replicable and up-scalable for other settings and target groups;
- established and operationalized systems for solar PV certification that complies with solar PV quality standards, with training programmes for government personnel, engineering consultants, solar PV suppliers and manufacturers, and solar PV installers. Monitoring and evaluation of solar PV installations for self-consumption and revenue generation has been setup but not yet institutionalized.

124. Due to expected increases in electricity prices, there are a number of other stakeholder discussions concerning renewable energy that go beyond solar PV in forest villages that may have an impact on RE in Türkiye. Topics being discussed amongst government personnel, beneficiary stakeholders and consultants include:

- land-based solar PV that is now permitted due to new regulations which appear to be changing frequently. While solar PV is only possible on greenhouses, agro-based solar PV (where solar PV panels exist with crops to provide shade from climate extremes) is a topic of discussion with currently no amendment or changes to the latest energy policy;
- industrial and agricultural RE generation not having to be in the same location as the users. This can move industry or agriculture towards more RE installations provided the RE facilities can be located in a place where there are appropriate land allocations;
- urban solar PV being discussed even though urban RE is not as common due to the apartment culture of cities. Tenants have to do rooftop solar PV installations as a cooperative, not individually. There are no regulations for apartment cooperatives;
- decreasing costs for storage system leading to discussion amongst stakeholders for its deployment;
- solar water heaters for forest villagers which are still in high demand; and
- program for biogas and other agricultural appliances based on cattle waste for which forest villagers are hoping for GDF assistance.

125. By the end of 2022, 40 provinces and 144 forest villages and 1,490 households have had 3.5 MW of solar PV installed with the assistance of ORKÖY's SEFM complete with a huge network of ORKÖY officers that cover every forest village. The future of solar PV for forest villages appears to be bright with ORKÖY's SEFM being in place for many years after the EOP.

# 4. CONCLUSIONS, RECOMMENDATIONS AND LESSONS

## 4.1 Main Findings

126. Since its start in 2016, the ORKÖY-PV Project has had an objective to promote and finance the adoption of solar PV systems in forest villages of Türkiye to benefit 175,000 people. This was to be done by putting in place the necessary policy setup, operationalizing a financial mechanism within the ORKÖY's SEFM, and enabling soft loans to be available to the villagers to achieve 30 MW of new installed capacity of grid-connected, residential solar PV.

127. The Project has faced significant challenges from 2016 to mid-2019, associated with turbulent political periods (including an attempted coup d'état), and governmental changes (including a national election with revision of cabinet in 2017, shift of governance mechanism to presidency system in 2018, and revision on solar PV legislation resulted in shifting to roof-top PV in 2019) (Para 50). This was followed by more challenges in the 2020 to 2022 period (including the COVID-19 pandemic, economic crisis, inflation, exchange rate fluctuation in 2021, increasing energy prices, and disruptions of supply chains) (Para 71).

128. The Project after 2019 and despite these circumstances, however, managed to achieve decent progress to successfully to setup and operationalize with GDF a "Sustainable Energy Finance Mechanism" Unit under the GDF-ORKÖY and to prepare a National Framework based on net metering for renewable energy for individual consumers to produce renewable electricity based on their installed electric consumption capacity. This favored roof-top PV installations and a continuation of financing solar PV installations for the most vulnerable segments of the population.

129. With credible technical reports prepared for pilot roof-top PV systems that augmented the business case for solar rooftop installations, the Project successfully piloted ORKÖY's SEFM to finance 2 land-based solar PV demonstration projects with cooperatives and 1,490 households with rooftop solar PV installations totaling 3.5 MW. It also established and operationalized certification systems to comply with solar PV quality standards, and setup training programmes for government personnel, engineering consultants, solar PV suppliers and manufacturers, and solar PV installers. The impacts of solar PV deployment are far-reaching including women beneficiaries using water pumps instead of fetching water from common water wells of the village and using household appliances (washing machines, electric stoves and vacuum cleaners) without bearing the burden of higher electricity bills. However, the Project has not yet completed an institutionalized MRV system nor has it provided evidence of a knowledge management strategy to facilitate learning, scaling up, and replication of Project results. This should be prioritized during the remaining time on the Project, to ensure the knowledge from the Project is institutionalized, including lessons learned from the different regions.

## 4.2 Conclusions

130. To conclude, the *ORKÖY-PV Project can be considered a success*. Even though objective-level targets were not achieved by the Project, the Project has removed barriers to solar PV installations in forest villages, augmenting a deployment model and securing a financial commitment from GDF towards solar PV for forest villagers after the EOP. With the Project managing a shift toward small-scale renewable energy solutions in rural communities, the process for application to ORKÖY SEFM was made easier. In addition to building the capacities of the public and private sector for solar PV installations and maintenance, and verifiable and reportable finance management within the

ORKÖY's SEFM Unit, the Project successfully managed to increase the number of solar PVs in forest villages, and secured the sustainability of finance through government support after the Project has ended. Important to the further expansion of solar PV generation in forest or other villages will be affordable financing that will not lead to the villagers having to compromise on their priorities when it comes to choosing between renewable energy or basic needs. The success and communication channels initiated by the Project also created new initiatives and motivation for private sector, such as advertisements from companies for roof-top solar PVs in Türkiye.

131. However, the most important achievement is the willingness and keenness of GDF's top management on continuing solar-PV finance as a part of their forest villager support program. This achievement was possible with robust communication activities between the PIU, GDF, ORKÖY, GUNDER and its members, MoE, EMRA, Presidency's State and Budget Office, distribution companies, Provincial special authorities, municipalities, private sector solar PV equipment installers and beneficiaries. There is a need to prioritize women during awareness raising and training activities. ORKÖY does not favor any gender or any disadvantaged group with every applicant having an equal chance during ORKÖY lotteries. With the geographic spread of Project-piloted across Türkiye of solar PV activities for forest villagers, this Project covers all regions of Türkiye by minimizing bureaucracy of on-grid connection applications, providing suitable funds, and introducing renewable energy systems and energy efficiency methods to them.

## 4.3 Recommendations

132. *Recommendation 1 (to UNDP and GDF): Present the options and opportunities for partnership with the IFIs as part of the exit strategy discussions with Project stakeholders to bring the lower costs of financing for the villagers*: The remaining period of the Project will be crucial in advancing the discussions on funding for soft loans that will ensure the sustainability of results. GDF's ORKÖY Department has already declared an allocated internal budget and IFI agreements for PV implementations for 2023[26]. IFIs have indicated that their interest in the new legislation changes favoring rooftops that should help them develop good financing products specific to individual rooftops, and hopefully other solar PV applications. While they have indicated their interest to learn from Project's findings and experience in procedures, prices, electricity production, payment back periods and GHG saving in relation to installations, there needs to be a guarantee that IFIs are involved with downstream financing in renewables.

133. *Recommendation 2 (to GDF and UNDP): Initiate discussions with relevant stakeholders with regards to regulations to expand unlicensed solar PV and other forms of renewable energy to other applications*. These applications may include:

- land-based solar PV farms that can be managed by a cooperative as has been successfully implemented in Afyon's Kulak Village and Konya's Gökbudak Village. The cooperative model can

[26] This includes TL 100 million from GDF internal budget for 2,000 houses (2 kW per household); US$12 million from World Bank's IDOP Project for 4,000 houses (2 kW per household) with 1,000 houses to be implemented by 2023; US$4.5 million from the TULIP Project for 1,500 houses to be implemented in 2 years (2 kW per household); US$3.5 million from the IPA III Project for 1,000 houses currently under discussion with the EU (2 kW per household); US$12 million under an AfD Project that is currently under discussion for 4,000 houses (2 kW per household). GDF emphasized that the average grid connected PV system capacity per house is 3 kW as most of the forest villagers are using self finance to leverage GDF credit. Additionally, there are at least 50 houses that are going to implement 4 kW on-grid connected PV systems without using GDF funds; they benefit from the GDF process of favorable PV implementation prices and ease of application for the solar PV investments.

potentially be profitable provided there is strong and honest management by the cooperative's board;

- agro-based solar PV where solar PV panels exist with crops to provide shade from climate extremes;
- livestock sheds or greenhouses with solar PV. However, these installations would have to be placed on solid roofing structures;
- solar-powered irrigation that will reduce the cost of crops, which is reportedly up to 80% electricity cost;
- covering irrigation canals with solar panels. This has the effect of tempering evaporation from canals and provides shade and cooler water to fisheries;
- urban apartment buildings with appropriate models.

Most of these applications should be discussed with relevant stakeholders such as MoFA. For some of these applications such as land-based solar PV farms, self-consumption would not be possible because the areas where solar PV can be placed will exceed self-consumption. One way around this is to involve distribution companies to have solar PV assets, leasing the land from landowners in exchange for solar PV power generation. Another measure to take would be the formation of a cooperative amongst community members.

134. *Recommendation 3 (to GDF and UNDP): Setup systems for forest villagers to manage their solar PV wastes with a licensed Waste from Electrical and Electronic Equipment (WEEE) treatment facility that accepts the defined waste using international best practices*. Turkey has a well-established WEEE management regulation that was recently updated by the end of 2022 in line with EU-WEEE and ROHS Directives. Under this regulation, forest villagers who own solar PV are obligated to dispose their solar PV wastes with a licensed WEEE treatment facility. There are 144 licensed WEEE treatment facilities in Türkiye managed by the Waste Management Department under MoEUCC under set WEEE regulations[27]. The WEEE waste streams can also extend to electronic waste that are high in volume such as freezers, air conditioners and lighting devices. Moreover, there is a need to ensure the management of WEEE waste streams is conducted in an integrated manner for environmentally sound management of a wider range of WEEE waste streams. This can lead to a discussion on this matter with Project stakeholders to ensure that the solar PV equipment and other WEEE waste does not lead to an environmental issue, even if it is likely to occur after the Project closure.

135. *Recommendation 4 (to UNDP and GDF): For future projects, employ a Project gender specialist who will ensure the continuous monitoring of gender indicators.* The Project did not have a gender specialist to provide monitoring of gender indicators and insights nor was a gender action plan prepared for this Project. This resulted in no gender disaggregated data and a lack of gender insights, leaving no conclusions to be drawn about female preferences and dislikes regarding Project activities and advocacy for increased female participation. In terms of impact monitoring of gender, the gender specialist could focus on possible positive impacts that project activities have on women beneficiaries (such as reduced electricity bills and allowing women to use more household appliances) or the number of women-only households entering the ORKÖY lottery. Such indicators will likely provide more insights into gender disaggregated data, and conclusions to be drawn about female preferences and dislikes.

[27] https://webdosya.csb.gov.tr/db/cygm/icerikler/yon-32055aeee-20230102154227.pdf

## 4.4 Lessons Learned

136. *Lesson learned #1: Direct interaction is the preferred means of communication among agri-communities rather than online web-tools or educational modules*. The COVID-19 pandemic placed restrictions on the movement of personnel forcing the Project to adapt to on-line web tools and virtual meetings. While this delayed the early solar PV pilots (both land-based and rooftop), face-to-face meetings were quickly restored as the primary means of communication.

137. *Lesson learned #2: Pilot solar PV implementation provided a good basis for co-financed solar PV implementation*. Pilot solar PV installations provided valuable experience to regulators, engineers and solar PV installers on how to efficiently implement and manage solar PV installations. Pilot solar PV installations also provided valuable experience to ORKÖY's SEFM Unit on managing applications for solar PV and financing net metered solar PV installations. The lessons applied to all regions of Türkiye.

138. *Lesson learned #3: The recruitment of an umbrella organization for solar PV, GUNDER, was key to making the process for solar PV installations for forest villagers efficient*. GUNDER provided valuable technical assistance to the ORKÖY-SEFM, one of them in the form of the "ORKÖY Rooftop SPP Preliminary Assessment Report" of March 2020[28]. This report outlined in detail the site of the pilot solar PV installations, the climate and solar irradiation figures, suggested solar equipment, and economic analysis. This report was considered sufficiently credible for use in all regions of Türkiye. GUNDER have a lot of experience on Turkish as well as European projects, offer training for its members especially EPC companies, offer technical assistance to the solar PV application process, certify solar PV equipment, and provide lobbyists for legislation.

139. *Lesson learned #4: Robust communication activities between all stakeholders was a key to success of the Project*. This includes strong communication between the PIU and:

- the regulators to ensure the net metering process can be implemented;
- the ORKÖY-SEFM Unit to ensure it was established and operational;
- GUNDER to ensure all technical issues of solar PV deployment were addressed (see Para 138);
- EMRA, TEDAS and distribution companies to ensure the process for applications for solar PV by forest villagers was efficient;
- solar PV manufacturers, suppliers and installers were fully engaged with solar PV installations for forest villagers; and
- Project beneficiaries and GUNDER to ensure solar PV installations complied with international standards and best practices.

140. *Lesson learned #5: The absence of a gender position on the Project did not advance gender mainstreaming*. With a gender action plan not formally prepared for this Project, there was no gender disaggregated data generated, depriving the Project of any gender insights, leaving no conclusions to be drawn about female preferences and dislikes regarding Project activities and advocacy for increased female participation. A dedicated gender position on the Project would have resolved this issue.

[28] Other reports include land based solar PV survey reports, market research, pilot land base solar PV plant feasibility, sample land based solar PV plant design, Health and Safety Report during Implementation, solar PV installation progress reports, and training documents.

# APPENDIX A – MISSION TERMS OF REFERENCE FOR ORKÖY-PV PROJECT TERMINAL EVALUATION

**Services/Work Description:**
In accordance with UNDP and GEF M&E policies and procedures, all full- and medium-sized UNDP-supported GEF-financed projects are required to undergo a Terminal Evaluation (TE) at the end of the project. This Terms of Reference (ToR) sets out the expectations for the TE of the full-sized project titled "Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Türkiye (ORKÖY-PV Project)" (PIMS ID: 5323) implemented through the Implementing Partner General Directorate of Forestry (GDF) of the Ministry of Agriculture and Forestry (MoAF). The project started on the 23 August 2016 and is in its 6th year of implementation. The TE process must follow the guidance outlined in the document 'Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects'.

**Project/Programme Title:**
"Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Türkiye (ORKÖY-PV Project)" (PIMS ID: 5323)

**Consultancy Title:**
Terminal Evaluation (TE) – UNDP GEF Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Türkiye (ORKÖY-PV) Project

**Duty Station:**
Duty Station for the assignment is home-based.

**Duration:**
Approximately 30 working days (including travel days).

**Expected start and end dates:**
15/08/2022-31/12/2022

## 1. BACKGROUND

Turkish Constitution Article 170 states that measures shall be introduced by law to secure cooperation between the State and the inhabitants of villages located in or near forests in the supervision and exploitation of forests for the purpose of ensuring conservation of forests and their integrity,and improving the living conditions of these inhabitants. 11th National Development Plan (2019-2023) lays the ground for ensuring uninterrupted, high-quality, sustainable, reliable and affordable energy supply, using renewable resources more intensively in the generation of electrical energy, expanding buildings that are more efficient and extending unlicensed solar power plant and wind power plant applications to meet prosumers' own electricity needs.

Türkiye views renewable energy resource utilization critically important to sustain its economic growth while fulfilling its commitments for climate change and environmental sustainability. Hence, Türkiye attaches great importance to the development of renewable energy sources. In accordance with the National Energy Policy adopted in 2017, increasing the use of domestic and renewable energy resources is among the main priorities. Furthermore, the country has ranked 5th in Europe and 12th in the world in terms of installed capacity in renewable energy. The share of renewables in Türkiye's installed power reached to 53.1% as of July 2021. In 2019, the share of renewables in electricity production was above EU 27 and OECD average according to Eurostat and IEA data and beyond Germany (EU av. 34.1%; OECD av. 27%; Germany 40.8%). According to IRENA, as of the end of 2020, Türkiye has ranked 4th in the world with its 1,613 MW installed capacity in geothermal energy. Also, Türkiye has ranked 9th in the world and 4th in Europe in renewable energy installed capacity growth in 2020.

In January 2021 new renewable energy support mechanism for post June-2021 period was announced and it will pave the way for the new private sector green energy investments. The 11th National Development Plan (2019-2023) set the target of the electricity generation from renewables as 38.8% for 2023. Renewable energy targets in Ministry of Energy and Natural Resources' Strategic Plan (2019-2023) for solar and wind are 10 GW and 11.8 GW by 2023, respectively. Türkiye will continue to promote the addition of more renewable capacity and aims to commission at least 1 GW solar and 1 GW wind capacity each year until 2027.

Türkiye has reflected its ambition for promoting renewable energy in its Intended Nationally Determined Contribution (INDC) as well as in relevant strategy documents, development plans and programs such as the 11th National Development Plan (2019-2023), National Climate Change Strategy and Action Plan, Ministry of Energy and Natural Resources (MENR) 2019-2023 Strategic Plan, National Energy Efficiency Action Plan 2017-2023 and Turkish Electricity Transmission Corporation (TEİAŞ) 2019-2023 Strategic Plan.

Türkiye's forest villages, the target of this Project, are generally impoverished with government support required to mitigate population losses in these communities due to the paucity of economic opportunities for their residents. ORKÖY is the Forest Village Relations Department within the GDF under MoAF. Forest villages are eligible for financial and technical support by the ORKÖY Department within GDF. ORKÖY was founded in 1970 and has gone through several organizational changes. Until recently, ORKÖY was itself a General Directorate but following changes in the structure of MoAF, it has been placed under GDF as a department. ORKÖY aims to contribute to the conservation of forests by supporting local communities. It has been operating a grant/loan program since 1974 targeting the forest villagers. ORKÖY is running two grant/loan systems: 1 - social (non-profit projects, including grants, available only for individuals) and 2 – economic (typically 20 % grant, available for both individuals and cooperatives. As a measure to assist these communities in breaking out of a vicious poverty cycle, ORKÖY through its resources has had plans to continue promoting renewable energy technologies within these communities, replicating the successful and still ongoing solar water heating program. However, legislation prior to the commencement of this Project was not supportive of providing renewable energy concessions, which would improve the access of households in these communities to affordable renewable energy technologies such as solar PV. Moreover, the past renewable energy incentives such as the feed in tariff (FiT) favor those households deemed to be sufficiently wealthy to invest in these technologies.

The ORKÖY-PV Project seeks to address several problems deemed as obstacles to solar PV technologies in forest villages including:

- the approval process for installations for renewable energy technologies is long, arduous and protracted;
- poor FiT and tenure pricing levels that serve as a disincentive for development of local renewable energy generation, especially considering the FiT relative to import electricity prices;
- prohibitive costs to community generation schemes that include costs for the connections to transmission lines and distribution companies, and re-importing electricity at higher costs for the benefit of utility companies, thus substantially reducing the net-benefit to the community;
- complex and highly bureaucratic administrative processes;
- lack of functional solar PV installations in forest villages that could convince residents to invest in renewable energy technologies.

The main objective of the ORKÖY-PV Project is to "support the successful launching of a sustainable energy financing mechanism within the ORKÖY credit mechanism to ensure that there is at least 30 MW of installed capacity of grid-connected, cooperative solar PV in forest villages (approximately 2.5% or 175,000 people living in forest villages will have their electricity needs met by solar PV) by the end of the project". The project was designed to reach its objective by:

- developing and expanding the policy and institutional framework to promote on-grid, residential solar PV (Component-1);

- demonstrating the technical and economic viability as well as the business model of the ORKÖY sustainable energy financing mechanism for solar PV systems through 4 pilot installations (Component-2);
- scaling up and replication at the national level (Component-3).

The financing scheme is divided into 4 phases. The first one will use grants only for financing of the pilot sites installation; second phase will use combination of GEF and ORKÖY grants and ORKÖY soft loan; third phase will introduce commercial loan together with GEF/ORKÖY grants and ORKÖY soft loan and the last phase will use deferred supplier payment tool in combination with ORKÖY grant/soft loan and commercial line of credit.

| | | | | |
|---|---|---|---|---|
| Project Title: | *Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Türkiye (ORKÖY-PV Project)* | | | |
| UNSDCF Outcome and CPD Output: | *UNSDCF Outcome 3.1: By 2025, all relevant actors take measures to accelerate climate action, to promote responsible production and consumption, to improve the management of risks and threats to people, to ensure sustainable management of the environment and natural resources in urban and ecosystem hinterlands.*<br>*CPD Output 3.3: Solutions developed, financed and applied at scale for energy efficiency and transformation to clean energy and low-carbon development* | | | |
| SDGs served | *SDG 7, to ensure access to affordable, reliable, sustainable and modern energy for all,*<br>*SDG 13, to take urgent action to combat climate change and its impacts, SDG 1, to end poverty in all its forms everywhere, and*<br>*SDG 15, to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.* | | | |
| GEF Project ID: | 5098 | | *at endorsement (Million US$)* | *at the time of evaluation (Million US$)* |
| UNDP Project ID: | 5323 | GEF financing: | 3.780 | 2.954 |
| Country: | Türkiye | IA/EA own: | 0.200 | 0.000 |
| Region: | Europe and CIS | Government: | 47.675 | 0.000 |
| Focal Area: | Climate Change | Other: | 4.625 | 0.000 |
| FA Objectives, (OP/SP): | FA Objective #3 for GEF 5: Promoting investment in renewable energy technologies | Total co-financing: | 52.500 | 0.994 |
| Implementing Partner: | Ministry of Agriculture and Forestry (MoAF) | Total Project Cost: | 56.280 | 0.994 |
| Other Partners involved: | N/A | ProDoc Signature (date project began): | | 23 August 2016 |
| | | (Operational) Closing Date: | Proposed: 28 February 2023 | Actual: 29 August 2022 |

Due to changes in the legislation, the project scope was limited to rooftop PV applications at forest villages through implementation of a pilot grant blended soft loan programme with GDF. New legislation has come into effect in 10 and 12 May 2019 that supports government policies to ensure that solar PV installations for residential consumers are used only for consumption by the households, and not for the sale of electricity into the grid. As a result, this new legislation provided clarity that unlicensed solar PV plants would only be solar PV rooftop installations with capacities that are commensurate to their actual electricity consumption. New legislation also includes:

- allowing households to install up to 10 kW of installed capacity on rooftops;
- allowing industrial establishments to install up to 5 MW of installed capacity;

- an obligation by government to net metering to purchase any excess electricity generated by the solar PV rooftop installation at a rate determined by the Energy Regulatory Commission that is reviewed every 3 months. The FiT (feed-in tariff rate for selling electricity to the grid) at the start of the ORKÖY-PV Project was USD 0.13 per kWh. The fluidity of the new tariff rates and installed capacity commensurate to the households' electricity consumption ensures that *any scheme with forest villages solar PV would not be focused on the sale of excess electricity by solar PV installations in forest villages*;measures to streamline the application process for rooftop solar PV. This includes the applicant receiving a permit from TEDAS for the rights to an installed capacity commensurate to their actual monthly electricity consumption, involving municipalities to ensure the rooftops have the static strength for solar PV installations, and decreasing application costs for rooftop solar PV.

Therefore, renewable energy cooperatives model for forest villages had to be abandoned due to ineligibility under new legislation, limiting the achievement of project's targets related to the installed capacity. To this end, General Directorate of Forestry (GDF) is currently implementing the **ORKÖY-PV** project **in cooperation with UNDP** through a blended pilot scale loan program for pilot scale self-consumption rooftop PV installations with **Global Environment Fund (GEF) funds** and Forest Village Relations (aka ORKÖY) Department's resources allocated by the government particularly to assist forest villages**. Through this pilot scale scheme, combined with GEF grants, the government meets almost half of the capital and loan expenditure for the villagers who practically pay back only half of the costs.** So far, the amount of $CO_2$ emissions lifted from energy production has reached **900 tons CO2eq** which will grow with full operationalization of the already installed **1.6 MW** of ground-mounted and rooftop solar PV systems leveraging nearly **3 million USD** worth of grant blended private investment. The installed capacity has reached 1.6 MW with 86 forest villages and 1000 households involved with 1,444,909 USD grant and 993,667 USD government co-financing.

**Amendments and extensions:**
12.07.2019 – Mid-Term Review – Revision of Log Frame
31.01.2020 – Project Extension granted for 24 Months
06.07.2022 – Project Extension granted for 6 Months (by 23/02/2023)

## 2. SCOPE OF WORK, RESPONSIBILITIES AND DESCRIPTION OF THE PROPOSED WORK

The TE will be conducted as all full-sized projects (FSPs), projects with a GEF grant value of more than US$2 million, and all programmes must complete a Mid-Term Review and Terminal Evaluation.

This Terminal Evaluation has the following ***purposes***:

- To measure to what extent the Project has contributed to solve the needs identified in the design phase.
- To measure Project's degree of implementation, efficiency and quality delivered on expected results (outputs) and specific objectives (outcomes), against what was originally planned or officially revised.
- To measure the project contribution to the objectives set in the UNDP Country Program Document (CPD), United Nations Sustainable Development Cooperation Framework (UNSDCF), Türkiye's Intended Nationally Determined Contribution (INDC) submitted to UNFCCC, 11$^{th}$ National Development Plan of Türkiye, Türkiye's National Climate Change Strategy and Action Plan, Strategic Plan of Ministry of Energy and Natural Resources, National Rural Development Plan and Strategy, along with relevant SDGs.
- To assess both negative and positive factors that have facilitated or hampered progress in achieving the Project outcomes, including external factors/environment, weakness in design, management and resource allocation.
- To assess the extent to which the application of the rights-based approach and gender mainstreaming are integrated within planning and implementation of the Project.
- To generate substantive evidence-based knowledge by identifying best practices and lessons learned that could be useful to other development interventions at national (scale up) and international level (replicability) and to support the sustainability of the Project or some of its components.

The TE will assess project performance against expectations set out in the project's Logical Framework/Results Framework (see ToR Annex A). The TE will assess results according to the criteria outlined in the Guidance for TEs of UNDP-supported GEF-financed Projects.

The Findings section of the TE report will cover the topics listed below. A full outline of the TE report's content is provided in ToR Annex C.

The asterisk "(*)" indicates criteria for which a rating is required.
Findings

i. Project Design/Formulation

- National priorities and country driven-ness
- Theory of Change
- Gender equality and women's empowerment
- Social and Environmental Standards (Safeguards)
- Analysis of Results Framework: project logic and strategy, indicators
- Assumptions and Risks
- Lessons from other relevant projects (e.g. same focal area) incorporated into project design
- Planned stakeholder participation
- Linkages between project and other interventions within the sector
- Management arrangements

ii. Project Implementation

- Adaptive management (changes to the project design and project outputs during implementation)
- Actual stakeholder participation and partnership arrangements
- Project Finance and Co-finance
- Monitoring & Evaluation: design at entry (*), implementation (*), and overall assessment of M&E (*)
- Implementing Agency (UNDP) (*) and Executing Agency (*), overall project oversight/implementation and execution (*)
- Risk Management, including Social and Environmental Standards (Safeguards)

iii. Project Results

- Assess the achievement of outcomes against indicators by reporting on the level of progress for each objective and outcome indicator at the time of the TE and noting final achievements
- Relevance (*), Effectiveness (*), Efficiency (*) and overall project outcome (*)
- Sustainability: financial (*) , socio-political (*), institutional framework and governance (*), environmental (*), overall likelihood of sustainability (*)
- Country ownership
- Gender equality and women's empowerment
- Cross-cutting issues (poverty alleviation, improved governance, climate change mitigation and adaptation, disaster prevention and recovery, human rights, capacity development, South-South cooperation, knowledge management, volunteerism, etc., as relevant)
- GEF Additionality
- Catalytic Role / Replication Effect
- Progress to impact

Main Findings, Conclusions, Recommendations and Lessons Learned

- The TE IC will include a summary of the main findings of the TE report. Findings should be presented as statements of fact that are based on analysis of the data.

- The section on conclusions will be written in light of the findings. Conclusions should be comprehensive and balanced statements that are well substantiated by evidence and logically connected to the TE findings. They should highlight the strengths, weaknesses and results of the project, respond to key evaluation questions and provide insights into the identification of and/or solutions to important problems or issues pertinent to project beneficiaries, UNDP and the GEF, including issues in relation to gender equality and women's empowerment.
- Recommendations should provide concrete, practical, feasible and targeted recommendations directed to the intended users of the evaluation about what actions to take and decisions to make. The recommendations should be specifically supported by the evidence and linked to the findings and conclusions around key questions addressed by the evaluation.
- The TE report should also include lessons that can be taken from the evaluation, including best practices in addressing issues relating to relevance, performance and success that can provide knowledge gained from the particular circumstance (programmatic and evaluation methods used, partnerships, financial leveraging, etc.) that are applicable to other GEF and UNDP interventions. When possible, the TE IC should include examples of good practices in project design and implementation.
- It is important for the conclusions, recommendations and lessons learned of the TE report to incorporate gender equality and empowerment of women.

The TE report will include an Evaluation Ratings Table, as shown below:

**Evaluation Ratings Table for ORKÖY-PV Project**

| Monitoring & Evaluation (M&E) | Rating[29] |
|---|---|
| M&E design at entry | |
| M&E Plan Implementation | |
| Overall Quality of M&E | |
| **Implementation & Execution** | **Rating** |
| Quality of UNDP Implementation/Oversight | |
| Quality of Implementing Partner Execution | |
| Overall quality of Implementation/Execution | |
| **Assessment of Outcomes** | **Rating** |
| Relevance | |
| Effectiveness | |
| Efficiency | |
| Overall Project Outcome Rating | |
| **Sustainability** | **Rating** |
| Financial resources | |
| Socio-political/economic | |
| Institutional framework and governance | |
| Environmental | |
| Overall Likelihood of Sustainability | |

Considering the evaluation parameters, the TE IC is expected to analyze data and share his/her findings, conclusions and recommendations generated by this analysis. As a reference point for the evaluation, the TE IC is provided with indicative evaluation questions in Annex D, which are expected to be amended, elaborated and submitted in the TE Inception Report in line with the categorization within the above Evaluation Ratings Table and shall be included as an annex to the final version of the evaluation report.

The TE report must provide evidence-based information that is credible, reliable and useful.

[29] Outcomes, Effectiveness, Efficiency, M&E, Implementation/Oversight & Execution, Relevance are rated on a 6-point scale: 6=Highly Satisfactory (HS), 5=Satisfactory (S), 4=Moderately Satisfactory (MS), 3=Moderately Unsatisfactory (MU), 2=Unsatisfactory (U), 1=Highly Unsatisfactory (HU). Sustainability is rated on a 4-point scale: 4=Likely (L), 3=Moderately Likely (ML), 2=Moderately Unlikely (MU), 1=Unlikely (U)

The TE IC will review all relevant sources of information including documents prepared during the preparation phase (i.e. PIF, UNDP Initiation Plan, UNDP Social and Environmental Screening Procedure/SESP) the Project Document, project reports including annual PIRs, project budget revisions, lesson learned reports, national strategic and legal documents, and any other materials that the IC considers useful for this evidence-based evaluation. The TE IC will review the baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the CEO endorsement and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.

The TE IC is expected to follow a participatory and consultative approach ensuring close engagement with the Project Team, government counterparts (the GEF Operational Focal Point), Implementing Partners, the UNDP Country Office, the Regional Technical Advisor, direct beneficiaries and other stakeholders.

Engagement of stakeholders is vital to a successful TE. Stakeholder involvement should include interviews with stakeholders who have project responsibilities, including but not limited to executing agencies, senior officials and task team/component leaders, key experts and consultants in the subject area, Project Board, project beneficiaries, academia, local government and CSOs, etc. specified in the below list:

- The main stakeholder of the ORKÖY-PV Project is the ORKÖY Department (the Forest Village Relations Department within GDF under MoAF).
- Ministry of Environment, Urbanization and Climate Change (MoEUCC), serves as the focal point of UNFCCC, and hosts the Presidency of Climate Change and is relevant to ORKÖY-PV as it pertains to its MRV legislation;
- The Ministry of Energy and Natural Resources (MoENR) is responsible for developing energy policy for Türkiye and policies related to natural resource use. In particular, their General Directorate of Energy Affairs (EIGM) is the key organization in the setting of renewable energy policies in Türkiye;
- Presidency of Strategy and Budget (PSB) is responsible for defining, assessing, and monitoring programme outputs towards country-level outcomes that will ensure ORKÖY-PV results are linked to national development plans;
- Turkish Electricity Distribution Company (TEDAS) is the state economic enterprise responsible to undertake approval procedure of unlicensed renewable energy projects including photovoltaics according to the related legislations (i.e. Law#5346 “Law on Utilization of Renewable Energy Sources For the Purpose of Generating Electrical Energy”). TEDAS is the key stakeholder of the project. TEDAS identifies the energy project’s structure, properties etc. All energy projects are currently approved by TEDAS before they are initiated;
- Turkish Electricity Transmission Company (TEIAS) is the state economic enterprise responsible for transmission of electricity within the country. TEIAS is a key stakeholder to the project in terms of defining the quotas for electricity feed in. The regional distribution utilities approach TEIAS and ask for suitability of energy projects in terms of quotas;
- Energy Market Regulatory Authority (EPDK) performs the regulatory and supervisory functions in the energy market, key to overcome specific barriers in terms of defining the methodology, permissions and ensuring the replicability of the project results;
- Turkish Utilities (Private sector) will purchase the electricity provided by the solar PV systems through power purchase agreements, either on the spot market or through longer-term agreements. Electricity will be purchased in accordance with the Turkish legislation on preferential feed-in-tariffs for renewable energy. This includes Osmangazi EDAŞ as the regional electricity distribution company for Afyon Project site, Fırat EDAŞ as the distribution company in Elazığ Region, Yeşilırmak EDAŞ as the distribution company for Çorum and finally Meram EDAŞ as the company for Konya region;
- Forest Cooperatives and the OR-KOOP. Forest cooperatives are legal non-governmental bodies consisting of forest villagers with a mandate of development of forest villagers. OR-KOOP (Central Union of Turkish Forest Cooperatives) is the organization that is representing the forest cooperatives in Türkiye with its headquarter in Ankara. OR-KOOP is an organization that is founded by 27 regional forest cooperative unions with more than 2,000 cooperative members. The forest cooperatives are eligible to be supported by ORKÖY;
- Forest Village Legal Entity is the smallest governance body in Türkiye. It is managed by the “Mukhtar”, Head of Village, who was elected for 5 years period during national elections. Forest village legal entities are eligible to be supported by ORKÖY;

- International Solar Energy Society (Turkish Section-GUNDER) is the umbrella organization of solar PV companies in Türkiye. The aim of the society is to promote all activities directed at the better utilization of solar energy. Since GUNDER is an umbrella organization serving not only governmental bodies but also private sector, GUNDER is a partner of the GEF project. Some of technical support activities will be implemented by GUNDER along with capacity development activities for sustainable energy finance program;
- Solar PV installers/manufacturers (private sector) to install and maintain solar PV equipment for forest villagers who will have successfully obtained financing either from the ORKÖY soft loans or later from domestic and international banks. They are mostly the members of the GUNDER; and
- Domestic and International Banks (private sector). Domestic and international banks would have no role in the project as they cannot compete with zero interest soft loans from ORKÖY. However, the ORKÖY soft loan programme (initially US$ 45 million) is possibly not large enough to cover the financing to meet the Government's NCCAP lower carbon targets. The possibility of bringing in domestic and international banks exists to see how they might provide financing for further investment in solar PV systems for forest villagers only if the current commercial interest rate of averagely 40% is lowered in the near future. This may include DenizBank, Sekerbank, Halkbank, Ziraat Bankası and EBRD.

Additionally, the TE IC is expected to conduct field missions to sites in *Ilgın, Konya for land-based PV systems, and Akyurt, Ankara for rooftop applications* in addition to some of the project sites in the following locations if required:

**Land Based PV System locations**
- Ilgın, Konya – Land Based PV System
- Şuhut, Afyonkarahisar – Land Based PV System

**Roof-Top PV Systems Locations:**
- Göynük, Bolu
- Feke, Adana
- Pozantı, Adana
- Dinar, Afyonkarahisar
- Gecek, Çorum
- İskilip, Çorum
- Kızılcahamam, Ankara
- Nallıhan, Ankara
- Akyurt, Ankara
- Korkuteli, Antalya
- Yusufeli, Artvin
- Ulus, Bartın
- Erdek, Balıkesir
- İvindi, Balıkesir
- Gölpazarı, Bilecik
- Yenice, Çanakkale
- Acıpayam, Denizli
- Lalapaşa, Edirne
- Karakoçan,Elazığ
- Merkez, Elazığ
- Tortum, Erzurum
- Uzundere, Erzurum
- Kelkit, Gümüşhane
- Şiran, Gümüşhane
- Merkez, Burdur
- Kiraz, İzmir
- Sarıgül, Manisa

- Merkez, Karabük
- Tosya, Kastamonu
- Sarıveliler, Karaman
- Lüleburgaz, Kırklareli
- Derbent, Konya
- Doğanhisar, Konya
- Hüyük Konya
- Beyşehir, Konya
- Develi, Kayseri
- Milas, Muğla
- Çekerek, Yozgat
- Ereğli, Zonguldak
- Merkez, Karaman
- Onikişubat, Kahramanmaraş
- Asarcık, Samsun
- Bozova, Şanlıurfa
- Saray, Tekirdağ
- Merkez, Tokat
- Maçka, Trabzon

Evaluation should employ a combination of qualitative and quantitative evaluation methods and instruments. The evaluator is expected to follow a participatory and consultative approach that ensures close engagement with the evaluation managers, implementing partners and male and female direct beneficiaries. Suggested methodological tools and approaches may include:

- **Document review.** This would include a review of all relevant documentation, inter alia
  o Project document (contribution agreement).
  o Theory of change and results framework.
  o Programme and project quality assurance reports.
  o Annual workplans.
  o Activity designs.
  o Consolidated quarterly and annual reports. o Results-oriented monitoring report.
  o Highlights of project board meetings.
  o Technical/financial monitoring reports.
- **Interviews and meetings** with key stakeholders (men and women) such as key government counterparts, donor community members, representatives of key civil society organizations, United Nations country team (UNCT) members and implementing partners:
  o **Semi-structured interviews**, based on questions designed for different stakeholders based on evaluation questions around relevance, coherence, effectiveness, efficiency, and sustainability.
  o Key informant and **focus group discussions** with men and women, beneficiaries and stakeholders.
  o All interviews with men and women should be undertaken in full confidence and anonymity. The final evaluation report should not assign specific comments to individuals.
- **Surveys and questionnaires** including male and female participants in development programmes, UNCT members and/or surveys and questionnaires to other stakeholders at strategic and programmatic levels.
- **Field visits** and on-site validation of key tangible outputs and interventions.
- **Other methods** such as outcome mapping, observational visits, group discussions, etc.
- **Data review and analysis** of monitoring and other data sources and methods. To ensure maximum validity, reliability of data (quality) and promote use, the evaluator will ensure triangulation of the various data sources.
- **Gender and human rights lens.** All evaluation products need to address gender, disability, and human right issues.

The specific design and methodology for the TE should emerge from consultations between the TE IC and the above-mentioned parties regarding what is appropriate and feasible for meeting the TE purpose and objectives and answering the evaluation questions, given limitations of budget, time and data. The TE IC must use gender-responsive methodologies and tools and ensure that gender equality and women's empowerment, as well as other cross-cutting issues and SDGs are incorporated into the TE report.

The final methodological approach including interview schedule, field visits and data to be used in the evaluation must be clearly outlined in the TE Inception Report and be fully discussed and agreed between UNDP, stakeholders and the TE IC.

The final report must describe the full TE approach taken and the rationale for the approach making explicit the underlying assumptions, challenges, strengths and weaknesses about the methods and approach of the evaluation.

**Gender and Human Rights-Based Approach**
As part of the requirement, evaluation must include an assessment of the extent to which the design, implementation, and results of the project have incorporated gender equality perspective and rights-based approach. The Individual Consultant is requested to review UNEG's Guidance in Integrating Human Rights and Gender Equality in Evaluation during the inception phase.

In addition, the methodology used in the final evaluation, including data collection and analysis methods should be human rights- and gender-sensitive to the greatest extent possible, with evaluation data and findings disaggregated by sex, ethnicity, age, etc. Detailed analysis on disaggregated data will be undertaken as part of final evaluation from which findings are consolidated to make recommendations and identify lessons learned for enhanced gender responsive and rights-based approach of the Project.

### 3. Expected Outputs and deliverables

The total duration of the TE will be approximately 30 working days (including travel days). The tentative TE timeframe is as follows:

| Timeframe | Activity |
|---|---|
| *20 June 2022* | Submission of Deployment Request to GPN/ExpRes Roster |
| *15 August 2022* | Selection of TE IC |
| *29 August 2022* | Preparation period for TE IC (kick-off meeting and handover of documentation) |
| *12 September 2022 (14 calendar days)* | Document review and preparation of TE Inception Report |
| *26 September 2022 (14 calendar days)* | Finalization and Validation of TE Inception Report; latest start of TE mission |
| *10 October 2022 (14 calendar days)* | TE mission: stakeholder meetings, interviews, field visits, etc. |
| *12 October 2022* | Mission wrap-up meeting & presentation of initial findings; earliest end of TE mission |
| *2 November 2022 (21 calendar days)* | Preparation of draft TE report |
| *21 November 2022* | Circulation of draft TE report for comments |
| *5 December 2022* | Incorporation of comments on draft TE report into Audit Trail & finalization of TE report |

| | |
|---|---|
| *7 December 2022* | Presentation of the final TE Report and Recommendations |
| *7 December 2022* | Expected date of full TE completion |
| *14 December 2022* | Preparation and Issuance of Management Response |

Options for site visits should be provided in the TE Inception Report.

| # | Deliverable | Due Date | Review and Approvals Required |
|---|---|---|---|
| 1 | Final TE Inception Report | 26 September 2022 | Reviewed and approved by M&E Analyst in consultation with the CCE Portfolio Manager |
| 2 | Draft TE Report | 2 November 2022 | Reviewed and approved by M&E Analyst, in consultation with the CCE Portfolio Manager and reviewed by RTA |
| 3 | Final TE Report* + Audit Trail | 5 December 2022 | Reviewed and approved by M&E Analyst in consultation with the CCE Portfolio Manager |
| 4 | Presentation | 7 December 2022 | Reviewed and approved by M&E Analyst in consultation with the CCE Portfolio Manager |

*All final TE reports will be quality assessed by the UNDP Independent Evaluation Office (IEO). Details of the IEO's quality assessment of decentralized evaluations can be found in Section 6 of the UNDP Evaluation Guidelines.

**4. Institutional arrangements/reporting lines**

The principal responsibility for managing the TE resides with UNDP. UNDP will contract the IC and ensure the timely provision of per diems and travel arrangements within the country for the IC. The Project Team will be responsible for liaising with the TE IC to provide all relevant documents, set up stakeholder interviews, and arrange field visits. UNDP will provide the IC all relevant background documents. Neither UNDP nor any of the project partners are required to provide any physical facility for the work of the Consultant.

The IC shall report to the Monitoring and Evaluation Analyst. The IC shall conduct the TE in collaboration with Portfolio Manager and Monitoring & Evaluation Officer of CCE Portfolio at UNDP.
The principal responsibility for managing this evaluation lies with UNDP. UNDP will assign a facilitator to set up the stakeholder interviews, arrange the field visits, coordinate with the GDF and provide translation (when necessary).

In preparation for the evaluation mission, which would last for 30 working days (including travel days), Project Manager, with assistance of CCE portfolio M&E officer, will provide the necessary documentation for the TE IC who will review the baseline and midterm GEF focal area Core Indicators/Tracking Tools submitted to the GEF at the CEO endorsement and midterm stages and the terminal Core Indicators/Tracking Tools that must be completed before the TE field mission begins.

These Terms of Reference follow the UNDP-GEF policies and procedures.

The TE IC shall be responsible to the Evaluation Manager (in this case UNDP's Monitoring and Evaluation Analyst) for the completion of the tasks and duties assigned throughout these Terms of Reference. All the reports are subject to approval from Evaluation Manager, for the payments to be affected to the Individual Consultant.

The following are the key actors involved in the implementation of this TE:
**Evaluation Manager**
This role will be conducted by the **Monitoring and Evaluation Analyst of UNDP** who will have the following functions:

- Supervise the evaluation process throughout the main phases of the evaluation (preparation of the ToR, implementation and management and use of the evaluation)

- Participate in the selection and recruitment of the Individual Consultant
- Provide the TE IC with administrative support and required data and documentation
- Ensure the evaluation deliverables meet the required quality
- Safeguard the independence of the exercise, including the selection of the Individual Consultant
- Review the Inception Report, Draft TE Report and Final TE Report and give necessary approvals on behalf of UNDP
- Collect and consolidate comments on draft evaluation reports and share with the evaluation consultant for finalization of the evaluation report
- Contribute to the development of management responses and key actions to all recommendations addressed to UNDP
- Ensure evaluation Terms of Reference, final TE reports, management responses are publicly available through Evaluation Resource Center within the specified timeframe
- Facilitate, monitor and report on implementation of management responses on a periodic basis

**Climate Change and Environment Portfolio Manager** will have the following functions:
- Establish the Evaluation Reference Group with key project partners when needed
- Ensure and safeguard the independence of the evaluation
- Provide comments and clarifications on the Terms of Reference, Draft TE Inception Report and Draft TE Report
- Ensure the Individual Consultant's access to all information, data and documentation relevant to the intervention, as well as to key actors and informants who are expected to participate in interviews, focus groups or other information-gathering methods
- Respond to evaluation recommendations by providing management responses and key actions
- Ensure dissemination of the evaluation report to key stakeholders
- Be responsible for implementation of key actions of the management response

**TE Individual Consultant** will be responsible for the overall coordination and quality of all the deliverables to be produced. It is the Individual Consultant who will be held accountable to UNDP in the quality of the final product. The Individual Consultant will conduct the evaluation study by fulfilling their contractual duties and responsibilities in line with this ToR, United Nations Evaluation Group (UNEG) norms and standards and ethical guidelines. This includes submission of all deliverables stipulated under Section 12 (Payment Schedule) of this ToR, to the satisfaction of UNDP. Individual Consultant's functions do not include any managerial, supervisory and/or representative functions in UNDP, end beneficiaries and implementing partners. All documents and data provided to the Individual Consultant are confidential and cannot be used for any other purpose or shared with a third party without any written approval from UNDP. There will be only one IC conducting the Terminal Evaluation for this project. The IC shall not have participated in the project preparation, formulation, and/or implementation (including the writing of the Project Document) and should not have a conflict of interest with project's related activities. The scope of work for the Individual Consultant of this evaluation will include but not be limited to:
- To develop and finalize the TE inception report that will include elaboration of how each evaluation question will be answered along with proposed methods, proposed sources of data, and data collection and analysis procedures;
- To design the tools and data collection;
- To conduct data collection, analysis and interpretation;
- To develop the draft evaluation report;
- To finalize the evaluation report;
- To present findings and debrief;
- To plan, execute and report, kickoff and feedback meetings and debriefings;
- To ensure compliance with the ToR of the TE for ORKÖY-PV Project; and
- To utilize best practice evaluation methodologies.

The IC shall avoid any kind of discriminatory behavior including gender discrimination and ensure that
- human rights and gender equality is prioritized as an ethical principle within all actions;
- activities are designed and implemented in accordance with "Social and Environmental Standards of UNDP";

- any kind of diversities based on ethnicity, age, sexual orientation, disability, religion, class, gender are respected within all implementations including data production;
- differentiated needs of women and men are considered;
- inclusive approach is reflected within all actions and implementations, in that sense an enabling and accessible setup in various senses such as disability gender language barrier is created;
- necessary arrangements to provide gender parity within all committees, meetings, trainings etc. introduced.

**Evaluation Reference Group:** Ministry of Agriculture and Forestry, General Directorate of Forestry will function as the Evaluation Reference Group. This Group is composed of the representatives of the major stakeholders involved in decision making in the Project and will review and provide advice on the quality of the evaluation process, as well as on the evaluation products (more specifically comments and suggestions on the draft report and final report) and options for improvement.

UNDP will assist the IC with below services;

- Provide support in collection of background materials;
- Participation in debriefings with UNDP CO and GDF representatives;
- Organize the mission program together with the Project Management Unit, arrange and facilitate meetings with key stakeholders;
- Assistance to the IC in conducting interviews with relevant stakeholders and provide translation during the interviews when necessary;
- Participation in debriefing with UNDP and project partners;
- Necessary support will be provided to IC in circulation of the draft TE report among the key project stakeholders for review and commenting.

**Reporting Line**

The Individual Consultant will be responsible to the Evaluation Manager (in this case UNDP's Monitoring and Evaluation Analyst) for the completion of the tasks and duties assigned throughout this Terms of Reference. All the reports are subject to approval from Evaluation Manager, for the payments to be affected to the Individual Consultant.

**Reporting Language and Conditions**

The reporting language shall be in English. All information should be provided in electronic version in word format. The Individual Consultant shall be solely liable for the accuracy and reliability of the data provided, along with links to sources of information used.

**Title Rights**

The title rights, copyrights and all other rights whatsoever nature in any material produced under the provisions of these TORs will be vested exclusively in UNDP.

**Duty Station and Travels**

Duty Station for the assignment is home-based. The Individual Consultant will be requested to travel to provinces where the Project is being implemented, as indicated in the expected interview schedule table below. All the costs associated with travel, accommodation and any other living costs shall be borne by UNDP, therefore should not be included in the price proposal of the TE IC. UNDP will arrange economy class roundtrip flight tickets through its contracted Travel Agency.

Assignment-related travel and accommodation costs outside of the Duty Station, which are pre-approved by UNDP, will be borne by UNDP in line with UNDP's corporate rules and regulations. The costs of these missions may either be;

- Arranged and covered by UNDP CO from the respective project budget without making any reimbursements to the Consultant, through UNDP's official Travel Agency or,

- Reimbursed to the Consultant upon the submission of the receipts/invoices of the expenses by the Consultants and approval of the UNDP. The reimbursement of each cost item is subject to the following constraints/conditions provided in below table or,
- Covered by the combination of both options.

The following guidance on travel compensation is provided as per UNDP practice:

| Cost item | Constraints | Conditions of Reimbursement |
|---|---|---|
| **Travel (intercity transportation)** | Full-fare economy class tickets | 1- Approval by UNDP of the cost items before the initiation of travel<br>2- Submission of the invoices/receipt, etc. by the Consultant with the UNDP's F-10 Form<br>3- Acceptance and approval by UNDP of the invoices and F-10 Form. |
| **Accommodation** | Up to 50% of the effective DSA rate of UNDP for the respective location | |
| **Breakfast** | Up to 6% of the effective DSA rate of UNDP for the respective location | |
| **Lunch** | Up to 12% of the effective DSA rate of UNDP for the respective location | |
| **Dinner** | Up to 12% of the effective DSA rate of UNDP for the location | |
| **Other Expenses (intra city transportations, transfer cost from /to terminals, etc.)** | Up to 20% of effective DSA rate of UNDP for the respective location | |

As per UNDSS rules, the IC is responsible for completing necessary online security trainings and submitting certificates and travel clearance prior to assignment-related travels.

"Interviews" referred in this Terms of Reference comprises such telecommuting and online conferencing tools as well. All travel arrangements shall be subject to pre-approval of the UNDP.

**Travel:**

- International travel will be required to Türkiye during the TE mission;
- The BSAFE course must be successfully completed prior to commencement of travel;
- Individual Consultants are responsible for ensuring they have vaccinations/inoculations when travelling to certain countries, as designated by the UN Medical Director.
- Consultants are required to comply with the UN security directives set forth under: https://dss.un.org/dssweb/
- All related travel expenses will be covered and will be reimbursed as per UNDP rules and regulations upon submission of an F-10 claim form and supporting documents.

**Expected Interview Schedule**

| Partners/Stakeholder(s) to be Interviewed | Location[30] | Estimated Day(s) of Interview* | Method |
|---|---|---|---|
| **UNDP** | **Ankara, Türkiye** | **1** | **In person** |
| **MoAF/GDF** | **Ankara, Türkiye** | **1** | **In person** |
| **MoEUCC** | **Ankara, Türkiye** | **0.2** | **Remote or in person** |
| **MoENR** | **Ankara, Türkiye** | **0.5** | **Remote or in person** |
| **EPDK** | **Ankara, Türkiye** | **0.2** | **Remote or in person** |
| **TEDAS** | **Ankara, Türkiye** | **0.2** | **Remote or in person** |
| **Electricity Distribution Companies (Utilities)** | **Ankara, Türkiye** | **0.2** | **Remote or in person** |
| **Renewable Energy Cooperative** | **Konya, Türkiye** | **0.5** | **In person** |
| **GUNDER** | **Ankara, Türkiye** | **0.5** | **In person** |
| **Sample beneficiaries (Forest Villagers)** | **Ankara, Türkiye** | **0.5** | **In person** |
| **Sample contractors (Solar PV suppliers)** | **Ankara, Türkiye** | **0.5** | **Remote or in person** |
| **ESTIMATED TOTAL** | | **5.3** | |

***COVID-19 Specific Measures:**

The Individual Consultant shall review all local regulations, as well as that of UN and UNDP concerning the measures, he/she must take during performance of the contract in the context of COVID-19. The Individual Consultant shall take all measures against COVID-19 imposed by local regulations, as well as by UN and UNDP during performance of the contract to protect his/her health and social rights, as well as UNDP personnel, Project Stakeholders and third parties. UNDP shall not be held accountable for any COVID-19 related health risks or events that are caused by negligence of the Individual Consultant and/or any other third party.

The contract is expected to start on 15/08/2022 (starting date is indicative and may be updated considering actual contract signature date) and expire on 31/12/2022.

**Evaluator Ethics**

The TE IC will be held to the highest ethical standards and is required to sign a code of conduct upon acceptance of the assignment. This evaluation will be conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluation'. The evaluator must safeguard the rights and confidentiality of information providers, interviewees and stakeholders through measures to ensure compliance with legal and other relevant codes governing collection of data and reporting on data. The evaluator must also ensure security of collected information before and after the evaluation and protocols to ensure anonymity and confidentiality of sources of information where that is expected. The information knowledge and data gathered in the evaluation process must also be solely used for the evaluation and not for other uses without the express authorization of UNDP and partners.

[30] The locations of partners and stakeholders do not rule out the probability of a remote monitoring mission. The names of cities are there to inform the reader about the location of stakeholders and do not mean that the Individual Consultant must pay an in-person field visit to each city indicated in this list.

**5. Experience and qualifications**

**I. Academic Qualifications:**

• At least a Master's Degree in environmental studies, economics, international relations, engineering, development studies or any other relevant field. (5 points)

Assets:

• Ph.D. Degree in environmental studies, economics, international relations, engineering, development studies or any other relevant field. (5 points)

**II. Years of experience:**

• Minimum 7 years of overall professional experience in research design, field work, qualitative, quantitative and mixed-method research strategies, including but not limited to focus groups, surveys and interview techniques. (15 points)

• Minimum 7 years of professional international experience in conducting and managing evaluations, assessments, research or review of development projects, programmes or thematic areas either as team leader, sole evaluator or as a team member. (15 points)

Assets:

• Project monitoring or implementation experience in UN agencies (10 pts)

**III. Language:**

• Good command of spoken and written English.

**IV. Competencies:**

• Experience in evaluation of renewable energy, sustainable finance, environment or climate change projects, programmes or thematic areas either as team leader or sole evaluator. (15 points)

Assets:

• Having conducted 3 to 5 evaluations, assessments, research or review of renewable energy projects, programmes or thematic areas either as team leader or sole evaluator. (10 points)

• Relevant experience in Türkiye or RBEC[31] region. (10 points)

• Experience in evaluation of GEF financed programmes or projects (15 points)

**V. Notes:**

• Internships (paid/unpaid) are not considered professional experience.

• Obligatory military service is not considered professional experience.

• Professional experience gained in an international setting is considered international experience.

• Experience gained prior to completion of undergraduate studies is not considered professional experience.

UNDP is committed to achieving workforce diversity in terms of gender, race, ethnicity, indigenous identity, disability and culture. Individuals from all genders, minority groups, indigenous groups and persons with disabilities are equally encouraged to apply. All applications will be treated with utmost confidentiality

**6. Payment Modality**

Payment to the individual contractor will be made based on the actual number of days worked, deliverables accepted and upon certification of satisfactory completion by the manager.

**Contracting Authority**

Contracting Authority for this Assignment is UNDP, and the contract amount will be provided through the respective project budget.

**Contracting Modality**

IC – Individual Contract of UNDP.

[31] UNDP Regional Bureau for Europe and the Commonwealth of Independent States (RBEC).

**Payment Schedule**

Payments will be made within 30 days upon acceptance and approval of the corresponding deliverable by UNDP on a lump-sum basis indicated below and the pertaining Certification of Payment document signed by the IC and approved by the Monitoring and Evaluation Analyst, in consultation with the CCE Portfolio Manager.

- 10% payment upon satisfactory delivery of the final TE Inception Report and approval by UNDP
- 80% payment upon satisfactory delivery of the final TE report and approval by UNDP and RTA (via signatures on the TE Report Clearance Form) and delivery of completed TE Audit Trail
- 10% payment upon satisfactory presentation/de-briefing of evaluation report findings.

Criteria for issuing the payment of 80% for Final TE Report[32]:

- The final TE report includes all requirements outlined in the TE TOR and is in accordance with the TE guidance.
- The final TE report is clearly written, logically organized, and is specific for this project (i.e. text has not been cut & pasted from other TE reports).
- The Audit Trail includes responses to and justification for each comment listed.

The IC shall be paid in USD if he/she resides in a country different than Türkiye. If he/she resides in Türkiye, the payment shall be realized in TL through conversion of the USD amount by the official UN exchange rate valid on the date of money transfer.

If the deliverables are not produced and delivered by the IC in due time and to the satisfaction of UNDP, no payment will be made even if the IC has invested time to produce and deliver such deliverables. Expected delivery dates of the reports will be finalized by UNDP during the Briefing Meeting that will be conducted upon contract signature.

The amount paid to the IC shall be gross and inclusive of all associated costs such as social security, pension and income tax etc. The amount to be paid to the Individual Consultant is fixed regardless of changes in the cost components. The price proposal amount should be indicated in gross terms and hence should be inclusive of costs related to tax, social security premium, pension, visa (if needed), etc. UNDP will not make any further clarification on costs related to tax, social security premium, pension, visa, etc. It is the Individual Consultant's responsibility to make necessary inquiries on these matters.

**Tax Obligations:** The IC is solely responsible for all taxation or other assessments on any income derived from UNDP. UNDP will not make any withholding from payments for the purposes of income tax. UNDP is exempt from any liabilities regarding taxation and will not reimburse any such taxation to the IC.

[32] UNDP is obligated to issue payments to the TE IC as soon as the terms under the ToR are fulfilled. If there is an ongoing discussion regarding the quality and completeness of the final deliverables that cannot be resolved between the UNDP and the TE IC, the Regional M&E Advisor and Vertical Fund Directorate will be consulted. If needed, the UNDP's senior management, Procurement Services Unit and Legal Support Office will be notified as well so that a decision can be made about whether or not to withhold payment of any amounts that may be due to the evaluator(s), suspend or terminate the contract and/or remove the individual contractor from any applicable rosters. See the UNDP Individual Contract Policy for further details:
https://popp.undp.org/_layouts/15/WopiFrame.aspx?sourcedoc=/UNDP_POPP_DOCUMENT_LIBRARY/Public/PSU_Individual%20Contract_Individual%20Contract%20Policy.docx&action=default

# APPENDIX B – MISSION ITINERARY (FOR OCTOBER-NOVEMBER 2022)

| # | Activity | Stakeholder involved | Place |
|---|---|---|---|
| ***6 September 2022 (Thursday)*** | | | |
| 1 | Kick-off meeting | UNDP | Zoom |
| ***31 October 2022 (Monday)*** | | | |
| 2 | Follow-up meeting on interviews to take place | UNDP and PIU | Zoom |
| ***1 November 2022 (Tuesday)*** | | | |
| 3 | Interviews with villagers from Poyraz in Salihli District, Manisa | Beneficiaries | Zoom |
| ***2 November 2022 (Wednesday)*** | | | |
| 4 | Interviews with villagers from Fırınlı Köyü (Kemer Village, Doğanhisar District) and Gökbudak, Ilgın District, Konya | Beneficiaries | Zoom |
| ***3 November 2022 (Thursday)*** | | | |
| 5 | Interviews with villagers from Kozayağı Village, Akyurt District, Ankara | Beneficiaries | Zoom |
| ***7 November 2022 (Monday)*** | | | |
| 6 | Interview with Osmangazi Electricity Distribution Company | Distribution Company | Zoom |
| ***8 November 2022 (Tuesday)*** | | | |
| 7 | Interview with Plurawatt | Solar PV equipment supplier | Zoom |
| ***10 November 2022 (Thursday)*** | | | |
| 8 | Interview with EPDK | EPDK | Zoom |
| 9 | Interview with TEDAS | TEDAS | Zoom |
| ***14 November 2022 (Monday)*** | | | |
| 10 | Interview with GUNDER | GUNDER | Zoom |
| ***16 November 2022 (Wednesday)*** | | | |
| 11 | Interview with ORKÖY | ORKÖY | Zoom |
| 12 | Interview with EIGM | EIGM | Zoom |
| 13 | Interview with Coruhedas Electricity Distribution Company | Distribution Company | |
| ***17 November 2022 (Thursday)*** | | | |
| 14 | Interview with Arkomenerji | Installation Company | Zoom |
| ***20 November 2022 (Sunday)*** | | | |

| # | Activity | Stakeholder involved | Place |
|---|---|---|---|
| 15 | Interview with Inosun | Installation Company | Zoom |
| ***21 November 2022 (Monday)*** | | | |
| 16 | Interview with Kcetas Distribution Company | Distribution Company | Zoom |
| ***24 January 2023 (Tuesday)*** | | | |
| 17 | Wrap-up meeting with UNDP and PIU | UNDP | Zoom |

Total number of meetings conducted: 17

# APPENDIX C – LIST OF PERSONS INTERVIEWED

1. Mr. Nuri Ozbagdatli, CCE Portfolio Manager, UNDP Turkey;
2. Mr. Murat Morel, ORKÖY-PV Project Coordinator;
3. Mr. Nurettin Cemil Gokpinar, Monitoring and Evaluation Officer, UNDP Turkey;
4. Ms. Oyku Ulucay, Monitoring and Evaluation Advisor, UNDP Turkey;
5. Mr. Mesut Güler, Deputy Head of Department, ORKÖY Department, GDF;
6. Mr. Yusuf Kurt, Branch Manager, ORKÖY Department, OGM;
7. Mr. Sebahattin Öz, EIGM Director, Government of Turkey;
8. Mr. H. Hasan Atug, Expert, EPDK, Government of Turkey;
9. Mr. Mehmet Izzet, Ozaydin, General Manager, Plurawatt and member of GUNDER;
10. Mr. Özgür Özcan, NEOENERJI Clean Energy, Istanbul;
11. Mr. Zeki Girgin, Headman, Poyraz Village, Manisa;
12. Mr. Ali and Mrs. Aysel, Male and Female Heads of Household, Poyraz Village, Manisa;
13. Mrs. Fatma and Mr. Mustafa, Milk Producers, Poyraz Village, Manisa;
14. Mr. Abdülkadir Efe, Headman, Fırınlı Köyü, Konya;
15. Mr. Hüseyin Arıcı, Male Head of Household, Fırınlı Köyü, Konya;
16. Mr. Aşır Türkan, Male Head of Household, Fırınlı Köyü, Konya;
17. Mr. Yaşar Ertekin, Cooperative President & Headman Renewable Energy Cooperative, Gökbudak, Konya;
18. Mr. Erdoğan Yıldırım and Mrs. Yeter Yıldırım, Male and Female Heads of Household, Kozayağı Village, Ankara;
19. Mr. Alaattin, Male Head of Household, Kozayağı Village, Ankara.

# APPENDIX D – LIST OF DOCUMENTS REVIEWED

1. UNDP Project Document and GEF CEO Endorsement Request for ORKÖY-PV Project;
2. ORKÖY-PV Project Inception Report, 2017;
3. Project Annual Report for 2015 and 2016;
4. Annual Work Plans for ORKÖY-PV Project for 2016 and 2017;
5. Socio-Economic Structure of the Forest Villages, Perceptions, Needs, Opportunities and Strategies, Prepared, Yaşama Dair Vakıf, for UNDP-GEF, 2018;
6. ORKÖY Rooftop SPP Project- Pre-Assessment Report, March 2020;
7. Project Financial Audit, 2021;
8. Steering Committee Meetings for 2019, 2020, and 2021;
9. Project Implementation Reports (PIRs) for 2019, 2020, 2021 and 2022;
10. Türkiye's 11$^{th}$ Development Plan 2019-2023;
11. Türkiye's 6$^{th}$ National Communication to the UNFCCC, 2016;
12. Türkiye's 7$^{th}$ National Communication and 3$^{rd}$ Biennial Report to the UNFCCC, 2018;
13. United Nations Country programme document for Turkey (2021-2025), 31 August – 4 September 2020, New York;
14. United Nations Sustainable Development Cooperation Framework (UNSDCF) for 2021-2025 between the Government of the Republic of Türkiye and the United Nations System in Türkiye.

# APPENDIX E – COMPLETED TRACKING TOOL

| **Core Indicator 1** | **Terrestrial protected areas created or under improved management for conservation and sustainable use** | | | | | ***(Hectares)*** |
|---|---|---|---|---|---|---|
| | | | *Hectares (1.1+1.2)* | | | |
| | | | *Expected* | | Achieved | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| Indicator 1.1 | Terrestrial protected areas newly created | | | | | |
| Name of Protected Area | WDPA ID | IUCN category | Hectares | | | |
| | | | Expected | | Achieved | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| | | Sum | | | | |
| Indicator 1.2 | Terrestrial protected areas under improved management effectiveness | | | | | |
| Name of Protected Area | WDPA ID | IUCN category | Hectares | METT Score | | |
| | | | | Baseline | Achieved | |
| | | | | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| | | Sum | | | | |
| **Core Indicator 2** | **Marine protected areas created or under improved management for conservation and sustainable use** | | | | | ***(Hectares)*** |
| | | | Hectares (2.1+2.2) | | | |
| | | | Expected | | Achieved | |
| | | | PIF stage | Endorsement | MTR | *TE* |
| | | | | | | |
| Indicator 2.1 | Marine protected areas newly created | | | | | |
| Name of Protected Area | WDPA ID | IUCN category | Hectares | | | |
| | | | Expected | | Achieved | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| | | Sum | | | | |
| Indicator 2.2 | Marine protected areas under improved management effectiveness | | | | | |
| Name of Protected Area | WDPA ID | IUCN category | Hectares | METT Score | | |
| | | | | Baseline | Achieved | |
| | | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| | | Sum | | | | |
| **Core Indicator 3** | **Area of land restored** | | | | | ***(Hectares)*** |
| | | | Hectares (3.1+3.2+3.3+3.4) | | | |
| | | | Expected | | Achieved | |

| | | | | | |
|---|---|---|---|---|---|
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| Indicator 3.1 | Area of degraded agricultural land restored | | | | |
| | | Hectares | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| | | | | | |
| Indicator 3.2 | Area of forest and forest land restored | | | | |
| | | Hectares | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| | | | | | |
| Indicator 3.3 | Area of natural grass and shrublands restored | | | | |
| | | Hectares | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| | | | | | |
| Indicator 3.4 | Area of wetlands (including estuaries, mangroves) restored | | | | |
| | | Hectares | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| | | | | | |
| **Core Indicator 4** | **Area of landscapes under improved practices (hectares; excluding protected areas)** | | | | ***(Hectares)*** |
| | | Hectares (4.1+4.2+4.3+4.4) | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| Indicator 4.1 | Area of landscapes under improved management to benefit biodiversity | | | | |
| | | Hectares | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| | | | | | |
| Indicator 4.2 | Area of landscapes that meet national or international third-party certification that incorporates biodiversity considerations | | | | |
| Third party certification(s): | | Hectares | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| | | | | | |
| Indicator 4.3 | Area of landscapes under sustainable land management in production systems | | | | |
| | | Hectares | | | |
| | | Expected | | Achieved | |

| | | | PIF stage | Endorsement | MTR | TE |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

| Indicator 4.4 | Area of High Conservation Value Forest (HCVF) loss avoided | |
|---|---|---|

| Include documentation that justifies HCVF | Hectares | | | |
|---|---|---|---|---|
| | Expected | | Achieved | |
| | PIF stage | Endorsement | MTR | TE |
| | | | | |
| | | | | |

| **Core Indicator 5** | **Area of marine habitat under improved practices to benefit biodiversity** | ***(Hectares)*** |
|---|---|---|
| Indicator 5.1 | Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations | |

| Third party certification(s): | Number | | | |
|---|---|---|---|---|
| | Expected | | Achieved | |
| | PIF stage | Endorsement | MTR | TE |
| | | | | |
| | | | | |

| Indicator 5.2 | Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial | | | | |
|---|---|---|---|---|---|
| | | | Number | | |
| | | | Expected | | Achieved |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |

| Indicator 5.3 | Amount of Marine Litter Avoided | | | | |
|---|---|---|---|---|---|
| | | | Metric Tons | | |
| | | | Expected | | Achieved |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |

| **Core Indicator 6** | **Greenhouse gas emission mitigated** | | | | ***(Metric tons of $CO_2$ e)*** |
|---|---|---|---|---|---|
| | | Expected metric tons of $CO_2$ e (6.1+6.2) | | | |
| | | PIF stage | Endorsement | MTR | TE |
| | Expected CO2e (direct) | *0* | *0* | *0* | *1885.61 (31.12.2022)* |
| | Expected CO2e (indirect) | | | | |

| Indicator 6.1 | Carbon sequestered or emissions avoided in the AFOLU sector | | | | |
|---|---|---|---|---|---|
| | | | Expected metric tons of $CO_2$ e | | | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | Expected CO2e (direct) | | | | |
| | | Expected CO2e (indirect) | | | | |
| | | Anticipated start year of accounting | | | | |
| | | Duration of accounting | | | | |

| Indicator 6.2 | Emissions avoided Outside AFOLU | | | | |
|---|---|---|---|---|---|
| | | | Expected metric tons of $CO_2$ e | | | |
| | | | Expected | | Achieved | |
| | | | PIF stage | Endorsement | MTR | TE |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Expected CO2e (direct) | | | | | |
| | Expected CO2e (indirect) | | | | | |
| | Anticipated start year of accounting | | | | | |
| | Duration of accounting | | | | | |
| Indicator 6.3 | Energy saved | | | | | |
| | | | MJ | | | |
| | | | Expected | | Achieved | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| Indicator 6.4 | Increase in installed renewable energy capacity per technology | | | | | |
| | | Technology | Capacity (MW) | | | |
| | | | Expected | | Achieved | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | *0* | *0* | *0* | *3487 kWp (31.12.2022)* |
| | | | | | | |
| **Core Indicator 7** | **Number of shared water ecosystems (fresh or marine) under new or improved cooperative management** | | | | | ***(Number)*** |
| Indicator 7.1 | Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation | | | | | |
| | | Shared water ecosystem | Rating (scale 1-4) | | | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| Indicator 7.2 | Level of Regional Legal Agreements and Regional Management Institutions to support its implementation | | | | | |
| | | Shared water ecosystem | Rating (scale 1-4) | | | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| Indicator 7.3 | Level of National/Local reforms and active participation of Inter-Ministerial Committees | | | | | |
| | | Shared water ecosystem | Rating (scale 1-4) | | | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| Indicator 7.4 | Level of engagement in IWLEARN through participation and delivery of key products | | | | | |
| | | Shared water ecosystem | Rating (scale 1-4) | | | |
| | | | Rating | | Rating | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| | | | | | | |
| **Core Indicator 8** | **Globally over-exploited marine fisheries Moved to more sustainable levels** | | | | | ***(Metric Tons)*** |
| Fishery Details | | | Metric Tons | | | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| **Core Indicator 9** | **Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products** | | | | | ***(Metric Tons)*** |

| | | | | | |
|---|---|---|---|---|---|
| | | Metric Tons (9.1+9.2+9.3) | | | |
| | | Expected | | Achieved | |
| | | PIF stage | PIF stage | MTR | TE |
| | | | | | |
| Indicator 9.1 | Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type) | | | | |
| POPs type | | Metric Tons | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| | | | | | |
| | | | | | |
| Indicator 9.2 | Quantity of mercury reduced | | | | |
| | | Metric Tons | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| Indicator 9.3 | Hydrochloroflurocarbons (HCFC) Reduced/Phased out | | | | |
| | | Metric Tons | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| Indicator 9.4 | Number of countries with legislation and policy implemented to control chemicals and waste | | | | |
| | | Number of Countries | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| Indicator 9.5 | Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities | | | | |
| | Technology | Number | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |
| | | | | | |
| | | | | | |
| Indicator 9.6 | Quantity of POPs/Mercury containing materials and products directly avoided | | | | |
| | | Metric Tons | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | PIF stage | Endorsement |
| | | | | | |
| | | | | | |
| **Core Indicator 10** | **Reduction, avoidance of emissions of POPs to air from point and non-point sources** | | | | ***(grams of toxic equivalent gTEQ)*** |
| Indicator 10.1 | Number of countries with legislation and policy implemented to control emissions of POPs to air | | | | |
| | | Number of Countries | | | |
| | | Expected | | Achieved | |
| | | PIF stage | Endorsement | MTR | TE |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| Indicator 10.2 | Number of emission control technologies/practices implemented | | | | | |
| | | | Number | | | |
| | | | Expected | | Achieved | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | | | | | |
| **Core Indicator 11** | **Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment** | | | | | ***(Number)*** |
| | | | Number | | | |
| | | | Expected | | Achieved | |
| | | | PIF stage | Endorsement | MTR | TE |
| | | Female | | | | |
| | | Male | | | | |
| | | *Total* | | | | |

# APPENDIX F – EVALUATION MATRIX

| Evaluative Questions | Indicators | Sources | Methodology |
|---|---|---|---|
| **Relevance: How does the project relate to the main objectives of the GEF Focal area, and to the environment and development priorities a the local, regional and national level?** | | | |
| To what extent was the project in line with GEF focal area, UNDP CPD, UNSDCF, Türkiye's Intended Nationally Determined Contribution (INDC), 11th National Development, Türkiye's National Climate Change Strategy and Action Plan, Ministry of Energy and Natural Resources (MENR) 2019-2023 Strategic Plan, National Energy Efficiency Action Plan 2017-2023 and Turkish Electricity Transmission Corporation (TEİAŞ) 2019-2023 Strategic Plan along with relevant SDGs? | Number of national priorities aligned with Project strategy | ProDoc<br>PIRs<br>Project designers | Desk review of PIRs and interviews PIU, stakeholders |
| To what extent was the theory of change applied in the project relevant to promoting investment in renewable energy technologies and expanding access to environmental and energy services for the poor within the framework of "leave no one behind agenda"? | Quality of outcomes and indicators on log frame | ProDoc<br>PIRs<br>Project designers | Desk review of PIRs and interviews with project designers, PIU, stakeholders |
| Are the project objectives and outputs clear, practical and feasible within its frame? Do they clearly address target groups? | Quality of outcomes and indicators on log frame | ProDoc<br>PIRs<br>Project designers<br>PIU | Desk review of PIRs and interviews with project designers, PIU, stakeholders |
| To what extent were lessons learned from other relevant projects considered in the design? | Related projects aligned with Project strategy | ProDoc<br>PIRs<br>Project designers<br>PIU | Desk review of PIRs and interviews with project designers, PIU, stakeholders |
| To what extent were perspectives of men and women who could affect the outcomes, and those who could contribute information or other resources to the attainment of stated results, taken into account during project design processes? | Number of national priorities aligned with Project strategy | ProDoc<br>PIRs<br>Project designers<br>PIU | Desk review of PIRs and interviews with project designers, PIU, stakeholders |
| To what extent was this Project designed as rights based and gender sensitive? | Effectiveness and efficiency ratings of the project by the evaluation | ProDoc<br>PIRs<br>Project designers<br>PIU | Desk review of PIRs and interviews with Project designers, PIU, stakeholders |
| To what extent does the Project create synergy/linkages with other projects and interventions in the country? | Effectiveness and efficiency ratings of the project by the evaluation | ProDoc<br>PIRs<br>PIU | Desk review of PIRs and interviews with PIU, stakeholders |
| **Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?** | | | |
| To what extent did the Project contribute to the attainment of the development of outputs and outcomes initially expected/stipulated in the Project Document's logical framework until the end of the project duration? | Effectiveness ratings of the project by the evaluation | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |

| Evaluative Questions | Indicators | Sources | Methodology |
|---|---|---|---|
| To what extent has the UNDP partnership strategy been appropriate and effective? | Stakeholder engagement ratings of the project by the evaluation | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| In which areas does the project have the greatest achievements? Why and what have been the supporting factors? How can the project build on or expand these achievements? | Effectiveness ratings of the project by the evaluation | PIRs and information from PIU, stakeholders and ORKÖY personnel | Desk review, interviews with PIU, stakeholders and ORKÖY personnel |
| In which areas does the project have the fewest achievements? What have been the constraining factors and why? How can or could they be overcome? | Effectiveness ratings of the project by the evaluation | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| What, if any, alternative strategies would have been more effective in achieving the project objectives? | Effectiveness ratings of the project by the evaluation | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| To what extent are project management and implementation participatory, and is this participation of target groups/ stakeholders contributing towards achievement of the project objectives? | Quality of adaptive management | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| To what extent has the project been appropriately responsive to the needs of the target groups and changing partner priorities? | Stakeholder engagement ratings of the project by the evaluation | PIRs and information from PIU, stakeholders and ORKÖY personnel | Desk review, interviews with PIU, stakeholders and ORKÖY personnel |
| To what extent has the Project contributed to the well-being and human rights of vulnerable groups, including, women? Did the Project effectively contribute to "leave no one behind agenda" and successfully integrate human rights-based approach (HRBA)? | Stakeholder engagement ratings of the project by the evaluation | PIRs and information from PIU, stakeholders and ORKÖY personnel | Desk review, interviews with PIU, stakeholders and ORKÖY personnel |
| To what extent has the grant blended ORKÖY-PV soft loan programme been effective in improving forest villagers' socio-economic standing and energy savings? | Quality of financing strategy to intended results | PIRs and information from PIU, financial stakeholders and ORKÖY personnel | Desk review, interviews with PIU, financial stakeholders and ORKÖY personnel |
| To what extent has the grant blended ORKÖY-PV soft loan programme been effective in creating awareness in forest villages for solar PV deployment and in demonstrating a functioning and viable financing model? | Quality of financing strategy to intended results | PIRs and information from PIU, financial stakeholders and ORKÖY personnel | Desk review, interviews with PIU, financial stakeholders and ORKÖY personnel |
| Did Covid-19 measures have a positive or negative effect on the achievement of Project results? | Quality of strategy to intended results | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| Efficiency: Was the project implemented efficiently, in line with international and national norms and standards? | | | |
| How well did Project Management work for achievement of results? | Institutional and management arrangements of the Project | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |

| Evaluative Questions | Indicators | Sources | Methodology |
|---|---|---|---|
| To what extent has there been an economical use of financial and human resources? Have resources (funds, staff, time, expertise, etc.) been allocated strategically and cost- effectively to achieve outcomes? | Institutional, financing and management arrangements of the Project | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| To what extent have project funds and activities been delivered in a timely manner? | Institutional, financing and management arrangements of the Project | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| To what extent do the M&E systems utilized by UNDP ensure effective and efficient project management? | Institutional and management arrangements of the Project | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| To what extent was there any identified synergy between UNDP initiatives/ projects that contributed to reducing costs while supporting results? | Institutional and management arrangements of the Project | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| Sustainability: | | | |
| To what extent will targeted people benefit from the project interventions in the long-term? | Number of stakeholders with issues concerning sustainable livelihoods | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| Are there any political or financial risks that may jeopardize sustainability of project results? | Number of government and financial stakeholders with issues concerning RE | PIRs and information from PIU, financial stakeholders and ORKÖY personnel | Desk review, interviews with PIU, financial stakeholders and ORKÖY personnel |
| Are the legal frameworks, policies and governance structures and processes in place for sustaining Project benefits? | ORKÖY governance and administrative processes | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| To what extent have development partners committed to providing continuing support? What is the risk that the level of stakeholder ownership will be insufficient to allow for the Project outcomes/benefits to be sustained? | Number of funds set up for post-GEF assistance | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| To what extent does this UNDP intervention have a well-designed and well-planned exit strategy? | Institutional and management arrangements of the Project | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| What could be done to strengthen exit strategies and sustainability in order to support forest villagers? | Institutional and management arrangements of the Project | PIRs and information from PIU and ORKÖY personnel | Desk review, interviews with PIU and ORKÖY personnel |
| Cross-cutting issues and gender equality and women's empowerment: How did the project contribute to gender equality and women's empowerment? | | | |
| To what extent has the Project contributed to "leave no one behind agenda" (including disabled, elderly, youth, refugees etc.)? | Number of stakeholders who are able to comment on LNOB | Stakeholders | Stakeholder interviews |
| To what extent have gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the project? | Quality of design to intended results | ProDoc and PIRs | Desk review |
| Is the gender marker assigned to this project representative of reality? | Number of stakeholders who are able to comment on gender aspects | Stakeholders | Stakeholder interviews |

| Evaluative Questions | Indicators | Sources | Methodology |
|---|---|---|---|
| To what extent has the project promoted positive changes in gender equality and the empowerment of women? Did any unintended effects emerge for women, men or vulnerable groups? | Number of stakeholders who are able to comment on gender aspects | Stakeholders | Stakeholder interviews |
| Impact: Are there indications that the project has contributed to, or enabled progress toward reduced environmental stress and/or improved ecological status? | | | |
| To what extent has the project provided an enabling environment and basis for deployment of solar PV installations in rural and urban areas? | Effectiveness and efficiency ratings of the project by the evaluation | PIRs<br>Stakeholders (mainly government personnel) | Desk review, interviews with PIU and stakeholders |
| To what extent has the project established a sustainable financing mechanism for renewable energy especially for poorer segments of the society? To what extent is the financing model piloted by the project replicable and up-scalable for other settings and target groups? | Barriers to objectives<br>Opportunities to leverage | PIRs<br>Stakeholders (mainly government personnel) | Desk review, interviews with PIU and stakeholders |

# APPENDIX G – REVISED STRATEGIC RESULTS FRAMEWORK FOR ORKÖY-PV PROJECT (FROM JULY 2019 ORKÖY-PV MTR REPORT)

| |
|---|
| **This project will contribute to achieving the following Country Programme Outcome as defined in the 2011 – 2015 CPD for Türkiye**<br>Outcome 3: Strengthening policy formulation and implementation capacity for the protection of the environment, and cultural heritage in line with sustainable development principles and taking into consideration climate change and disaster management |
| **Country Programme Outcome Indicators:** Reductions in the level greenhouse gas emissions. |
| **Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):** 1. Mainstreaming environment and energy, and 4. Expanding access to environmental and energy services for the poor. |
| **Applicable GEF Strategic Objective and Program: Climate change objective3:** To promote investment in renewable energy technologies |
| **Applicable GEF Expected Outcomes:** 3a Appropriate policy, legal and regulatory frameworks adopted and enforced; 3b Sustainable financing mechanisms established and operational; 3c GHG emissions avoided. |
| **Applicable GEF Outcome Indicators:** 3a Extent to which EE policies and regulations are adopted and enforced; 3b Volume of investment mobilized; 3c Avoided GHG emissions from on-grid PV electricity generation (tons $CO_2$/MWh); and \$/t $CO_2$. |

| Strategy | Indicator | Baseline | Targets | Source of Verification | Risks and Assumptions |
|---|---|---|---|---|---|
| **Project Objective: To support the successful launching of a sustainable energy financing mechanism within the ORKÖY credit mechanism to ensure that there is at least 30 MW of installed capacity of grid-connected, residential solar PV in forest villages in Türkiye (approximately 2.5% or 175,000 people living in forest villages will have their electricity needs met by solar PV) by the end of the project** | • Amount of reduced $CO_2$ emissions from the power sector (compared to the project baseline) by end of project, tons $CO_{2eq}$ | • 0 | • 28,750 | Project's annual reports, GHG monitoring and verification reports<br><br>Project final evaluation report<br><br>Post project market monitoring and evaluations<br><br>Annual reports from forest cooperatives | Continued commitment of project partners, including Government agencies and investors/ developers<br><br>Unexpected rise in cost of solar PV during remaining period of implementation, increasing reluctance of forest villagers to invest with ORKÖY's SFM<br><br>1.5 work positions per project (maintenance, security) |
| | • Cumulative installed capacity of grid-connected PV systems (kWp) | • 0 | • 30,000 | | |
| | • Cumulative total electricity generation from installed grid-connected PV systems (kWh/year) | • 0 | • 47,520,000 | | |
| | • Cumulative number of created job positions for forest villagers related to solar pv | • 0 | • 450 | | |

| Strategy | Indicator | Baseline | Targets | Source of Verification | Risks and Assumptions |
|---|---|---|---|---|---|
| | • Number of people living in forest villages who will have their electricity needs met by solar PV | • 0 | • 175,000 | | |
| **Component 1:**<br>**Policy & Institutional Framework for supporting Sustainable energy financing mechanism for solar power in forest villages** | | | | | |
| **Outcome 1.1:**<br>**Enhanced enabling policy and environment, within which ORKÖY's sustainable energy financing mechanism continues to operate beyond the lifetime of the project** | • SEFM unit appointed, introduced and confirmed by ORKÖY<br>• National Framework published and approved<br>• Technical report developed and published | • None<br>• None<br>• 0 | • 5 months after project start<br>• Published before end of 2019<br>• Published report 7 months after project start | Published documents.<br>Projects annual reports. | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government).<br>Unchanged legislative framework. |
| **Output 1.1:**<br>Evaluation and selection of public-private business models (ORKÖY, solar PV installers, utilities, domestic banks) for provision of affordable, grid-connected residential solar PV to forest villagers, using an individual household and/or cooperative model | Completed and published Evaluation report by Year 1 | None | ER by late 2019 | Published ER | Unchanged commitment of relevant stakeholders (ORKÖY, utilities, installers, banks) |
| **Output 1.2:**<br>Terms of Reference for ORKÖY's Credit Programme are revised, agreed, published and disseminated | • Completed and published TOR by Year 1<br>• No. of dissemination events for stakeholders | • 0<br>• 0 | • Published ToR before end of 2019<br>• At least 5 | Published TOR before end of 2019<br>Lists of participants, official publications, media reports | Unchanged commitment of relevant stakeholders (ORKÖY, utilities, installers, banks) |

| Strategy | Indicator | Baseline | Targets | Source of Verification | Risks and Assumptions |
|---|---|---|---|---|---|
| **Output 1.3:** Sustainable energy Financing unit established within ORKÖY with dedicated full time staff | • No. of full time staff appointed<br>• ORKÖY-PV unit appointed, introduced and confirmed by ORKÖY | • 0<br>• No ORKÖY-PV unit | • At least 2<br>• Unit appointed 5 months after project start | Project's annual reports<br>ORKÖY's official announcement | Unchanged commitment of ORKÖY |
| **Output 1.4:** Model contract for ORKÖY soft loan developed and utilized | Model contract published and approved by ORKÖY | None | Published before end of 2019 | Model contact published | Unchanged commitment of ORKÖY |
| **Output 1.5:** National Framework designed and operationalized to use Türkiye's Feed-In-Tariff scheme for the purpose of solar PV for forest villagers | National Framework published and approved | None | Framework approved by end of 2019 | Published framework | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government) |
| **Output 1.6:** Technical report on grid capacity and requirements for grid-connected PV installations | Technical report developed and published | None | Technical report published 7 months after start of project | Published report | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government). |
| **Output 1.7:** Reports on results of recently introduced and piloted net metering published and disseminated | Net metering pilot results published<br>• Number of dissemination events | • 0<br>• 0 | • Results published by end of 2019<br>• 2[45] | Published methodology<br>Lists of participants, official publications, media reports, press releases | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government).<br>Unchanged legislative framework |
| **Component 2: Solar PV demonstration Projects** | | | | | |
| **Outcome 2.1: Sustainable Energy Financing Mechanism of ORKÖY successfully** | • No. of land-based solar PV plant projects (each 100 kW) implemented | • 0 | • 2 | Project documents | Unchanged commitment of ORKÖY and interest of forest villages |

[45] One with governmental stakeholders and one with financial sector stakeholders.

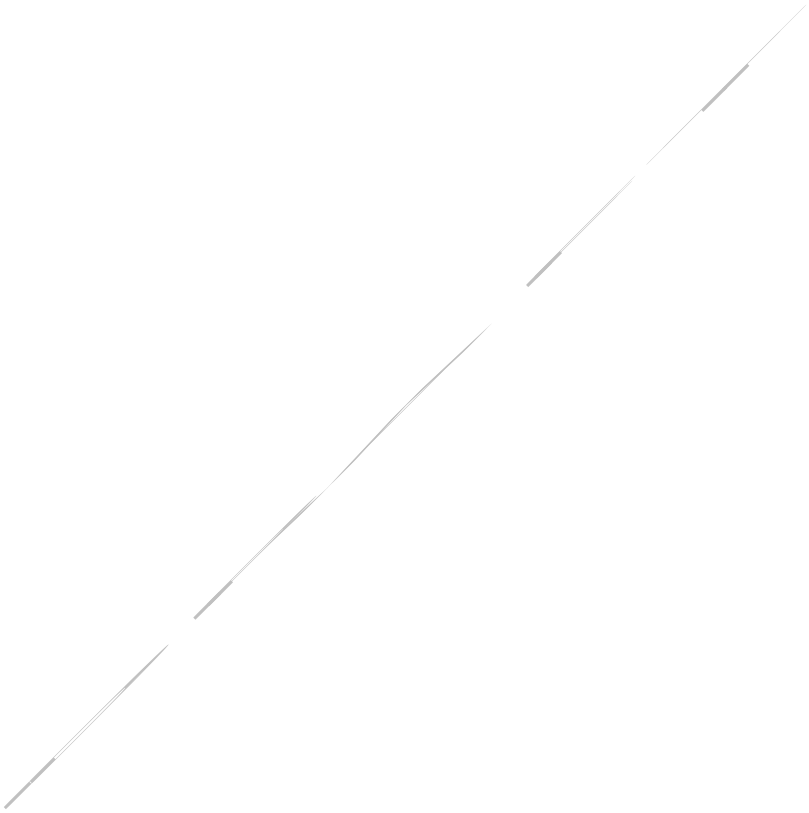
| Strategy | Indicator | Baseline | Targets | Source of Verification | Risks and Assumptions |
|---|---|---|---|---|---|
| **finances four Solar PV demonstration projects (each up to 100 kW in total) are setup in forest villages, using either individual household and/or cooperative models** | • No. of regions involved household rooftops where solar PV installed<br>• Total installed capacity of the projects (kWp)<br>• No. of villages where pilot solar PV are being installed | • 0<br>• 0<br>• 0 | • 200[46]<br>• 600<br>• 19[47] | Approvals from competent bodies<br>Press releases | |
| **Output 2.1:** Business plans & feasibility studies prepared for land-based solar PV installation and for rooftop-based solar PV installation demonstration projects in forest villages | No. of project reports prepared and approved | 0 | 2 | Published documents | Unchanged commitment of ORKÖY and interest of forest villages |
| **Output 2.3:** Case studies on each of the Demonstration Projects | No. of case studies prepared | 0 | 2[48] | Published case studies | Unchanged commitment of ORKÖY and interest of forest villages.<br>Successful implementation of demonstration projects |
| **Output 2.4:** Short video documentary on the demonstration projects | No. of video spots published | 0 | 1 | Published video spots | Unchanged commitment of ORKÖY and interest of forest villages.<br>Successful implementation of demonstration projects |
| **Component 3: Replication and scaling up – Enhancement of the sustainable energy financing mechanism** | | | | | |

[46] 100 rooftop installations in 4 villages and 100 rooftop installations in an estimated 20 villages.
[47] Ibid 36.
[48] This will include two studies: one for the 2 villages with land-based solar PV projects and second study for the rooftop solar PV projects in 19 villages.

| Strategy | Indicator | Baseline | Targets | Source of Verification | Risks and Assumptions |
|---|---|---|---|---|---|
| **Outcome 3.1:**<br>**Sustainable Energy Financing Mechanism of ORKÖY successfully provides soft loans to contribute to the deployment of at least 30MW of solar PV during project lifetime** | • Amount of reduced $CO_2$ emissions from the power sector (compared to the project baseline) by EOP, tons $CO_2$eq<br>• Cumulative installed capacity of grid-connected PV systems (kWp)<br>• Cumulative total electricity generation from installed grid-connected PV systems (kWh/year) | • 0<br>• 0<br>• 0 | • 28,750<br>• 30,000<br>• 47,520,000 | Project's annual reports, GHG monitoring and verification reports | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government).<br>Successful implementation of demonstration projects<br>Interest of other financial subjects in the program |
| **Output 3.1:**<br>National Awareness Raising Programme (NARP) for ORKÖY Sustainable Energy Financing Mechanism addressing forest village end-users and cooperatives | NARP is developed | None | NARP developed by end of 2019 | Published NARP document | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government). |
| **Outcome 3.2:**<br>**Sustainable Energy Financing Mechanism of ORKÖY has in place systems for M&E, quality standards, and certification systems and training programmes** | • MRV system developed<br>• Quality standards developed<br>• Certification scheme implemented | None | End Year 1 MRV system, quality standards and certification scheme developed in early 2020 | Projects annual reports. | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government).<br>Successful implementation of demonstration projects |
| **Output 3.3:**<br>National workshops held to promote the solar PV training | • No. of dissemination events | • None | • 12[49]<br>• 400 | Lists of attendance<br>Press releases | Unchanged commitment of ORKÖY and relevant |

[49] This will include 4 regions and 4 target groups.

| Strategy | Indicator | Baseline | Targets | Source of Verification | Risks and Assumptions |
|---|---|---|---|---|---|
| manual targeting solar PV value chain (ORKÖY officials, installers, distribution companies) | • No. of involved persons/entities<br>• Residential rooftop solar PV manual for ORKÖY staff<br>• Workshop material for the 4 different workshops (ORKÖY staff, OGM local staff, installers and distribution companies) | • None<br>• None<br>• None | • 1<br>• 4 | | stakeholders (utilities, government).<br>Successful implementation of demonstration projects |
| **Output 3.6:** Workshops with financial sector stakeholders to consult, build familiarity and support finance to residential rooftop solar PV | • No. of events organized<br>• No. of involved institutions | • 0<br>• 0 | • At least 3<br>• At least 5 | Projects annual reports.<br>Lists of attendance<br>Press releases | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government).<br>Successful implementation of demonstration projects |
| **Output 3.7:** Project Website - Practical Guide to Investing in Residential Rooftop Solar PV in Türkiye | Web site developed and updated | 0 | Website developed by end of 2019 | Website | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government).<br>Successful implementation of demonstration projects |
| **Output 3.8:** ITMO trade model setup for carbon market for residential rooftop solar PV project | The trade model developed | None | Trade model delivered by late 2021 | Projects annual reports. | Unchanged commitment of ORKÖY and relevant stakeholders (utilities, government).<br>Successful implementation of demonstration projects |



# APPENDIX H - RESPONSES TO COMMENTS RECEIVED ON DRAFT TE REPORT

| *Institution/ Organization* | *#* | *Para #/ Comment location (line #)* | *Chapter/ Section* | *Comment/Feedback on draft TE report* | *TE IC response and actions taken* |
|---|---|---|---|---|---|
| *UNDP* | *General Remarks* | *N/A* | *N/A* | *Methodology is not clearly stated. Data Sources and Methodology are inherently linked sections but they require different texts. Data sources are stated instead of Methodology. Methodological approaches used should be discussed in detail. How you use qualitative/quantitative/ mixed-methods should be explained. Evaluators also explain they use triangulation/contribution analysis etc but it needs to be motivated. If you use qualitative method, how you store, transcribe and analyze data and the software used and data protocols need to be explained. Your limitations should be a sub-section of Methodology so that readers are aware of the strength of your evidence base.* | *Done* |
| *UNDP* | *General Remarks* | *N/A* | *N/A* | *OECD DAC criteria (**relevance, efficiency, effectiveness, sustainability, missing ones: cross-cutting, impact**) are explained too shortly. There are only a few lines for each after which the evaluator declares his ranking. Evaluation Questions (35 EQ in total) as agreed in the Evaluation Matrix should be explicitly answered and the ranking should be a natural extension of the answers to all those EQs.* | *Done* |
| *UNDP* | *General Remarks* | *N/A* | *N/A* | *The evaluator does not provide references to data sources, field work, interviews or quotes by notable interviewees while stating his observations or conclusions. Appropriate references should be made to show evaluation was evidence-based.* | I am hesitant to provide specific data sources other than interviews with villagers or Project consultants. Interviews were to be undertaken in full confidence and anonymity |
| *UNDP* | *General Remarks* | *N/A* | *N/A* | *Conclusions, Findings, Recommendations and Lessons learned seem short. There must be many more findings, lessons learned or recommendations given that this is a 7-year long project that went through multiple hurdles. The project team* | *The Project team can assist in this if there are any other conclusions,* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| | | | | *can provide inputs to the evaluator about how this last section can be enriched.* | *recommendations or lessons learned* |
| *UNDP* | *General Remarks* | *N/A* | *N/A* | *There are inconsistencies in use of abbreviations for GDF (OGM, OGD etc). Please use GDF throughout the document. Similarly, use "GUNDER" instead of the wrong "GUNDAR" and "MoENR" instead of "MoE". Also please use the latest name of the Ministry of Agriculture and Forestry (MoFA). Additionally, please use longer forms of the abbreviations/acronyms the first time they are used such as SWH, FCV etc. Please also use PMU, PMO and PIU consistently, if there are differences particularly in meaning. Please revise all references to the Annexes after you reorganize the annexes in line with ToR and GEF guidelines.* | *Done* |
| *UNDP* | *1* | *…/16* | *Title Page* | *Title page needs also to include the following:*<br>*- GEF Focal Area/Strategic Program*<br>*- Executing Agency, Implementing partner and other project partners (GDF Logo might suffice)* | *Done* |
| *UNDP* | *2* | *…/27* | *Table of Contents* | *After title page, Acknowledgements should follow before the Table of Contents. After Table of Contents, Acronyms and Abbreviations should follow. An assessment on "Risk Management, including Social and Environmental Standards (Safeguards)" section is missing under Project Implementation chapter. Especially, many elements in Annexes are missing. Please provide all required annexes. Please ensure consistency with the Guidelines and ToR. The report outline must exactly follow the sequence provided in ToR Annex C* | *Done* |
| *UNDP* | *4* | *…/156* | *Executive Summary* | *In response to the TE IC's question on "additional extensions":*<br>*12.07.2019 – Mid-Term Review – Revision of Log Frame*<br>*31.01.2020 – Project Extension granted for 24 Months*<br>*06.07.2022 – Project Extension granted for 6 Months (by 28/02/2023)* | *Done* |
| *UNDP* | *5* | *…/158* | *Executive Summary* | *Shouldn't TE assessment cover until December 2022 as given in the timeframe in the Synopsis section?* | *Done* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| UNDP | 6 | …/163 | Project Summary Table | As of 31.12.2022, GEF financing at the time of evaluation reached 3,694,943.84 USD, total co-financing reached 2,293,663 USD, total project cost reached 2,293,663 USD.<br><br>Extension was granted so the operational closing date is now formally 28-Feb-2023 | Done |
| UNDP | 7 | …/195 | Executive Summary | Please remove the irrelevant texts from templates. Please also clarify the scoring, what do S and L stand for? | Done |
| UNDP | 8 | …/217 | Evaluation Ratings/Executive Summary | Your ratings in the text are mostly "Satisfactory". But here the scores are different. Please ensure consistency with the ratings in the texts and in the Evaluation Ratings table. | Done |
| UNDP | 9 | 2/241-249 | Purpose of the Evaluation | Please restructure here in line with the ToR:<br>× To measure to what extent the Project has contributed to solve the needs identified in the design phase.<br>× To measure Project's degree of implementation, efficiency and quality delivered on expected results (outputs) and specific objectives (outcomes), against what was originally planned or officially revised.<br>× To measure the project contribution to the objectives set in the UNDP Country Program Document (CPD), United Nations Sustainable Development Cooperation Framework (UNSDCF), Turkey's Intended Nationally Determined Contribution (INDC) submitted to UNFCCC, 11th National Development Plan of Turkey, Turkey's National Climate Change Strategy and Action Plan, Strategic Plan of Ministry of Energy and Natural Resources, National Rural Development Plan and Strategy, along with relevant SDGs.<br>× To assess both negative and positive factors that have facilitated or hampered progress in achieving the Project outcomes, including external factors/environment, weakness in design, management and resource allocation.<br>× To assess the extent to which the application of the rights-based approach and gender mainstreaming are integrated within planning and implementation of the Project. | Done |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| | | | | × To generate substantive evidence-based knowledge by identifying best practices and lessons learned that could be useful to other development interventions at national (scale up) and international level (replicability) and to support the sustainability of the Project or some of its components. | |
| UNDP | 10 | 4/256 | Scope and Methodology | A gender-responsive methodology is proposed in the TOR. The evaluation report does not explain how this is ensured (which measures were taken and approaches adopted by the evaluator to ensure this including how the sampling strategy included GEEW or representative groups) Suggest including and quoting more project related sources such as interviewees, monitoring reports, training reports and records, etc. to illustrate how you did this. It may be good to share the interview questions as an annex to show it includes some focus on gender.<br><br>The methodology seems to be using a mixed methods approach which should be sufficient to triangulate voices across women and men and other stakeholder groups. This is never clearly stated, only data sources are listed.<br>There is no evaluation matrix provided | Done |
| UNDP | 11 | 4/264 | Scope and Methodology | Please correct the data: 50% Grant => 33% GEF + 17% GDF | Done |
| UNDP | 12 | 6/272-285 | Scope and Methodology | This is not the methodology but data sources.<br>Methodology should explain which methods you used including, qualitative (if qualitative which specific methods i.e focus groups, in-depth interviews), quantitative or mixed-method and how they were carried out. How did you triangulate? You should also explain how you used Gender and Human Rights-Based Approach" as it is part of the methodology of all UNDP evaluations.<br>You should also explain your methodological limitations here. What were your limitations in using quantitative/qualitative/mixed-method research? | Done |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| | | | | *i.e How did you bypass social desirability bias in qualitative method? Were quantitative data sources (i.e MRV data) sound and robust?*<br><br>*You should also explain any changes to the evaluation approach or limitations in implementation. For instance, qualitative method was to be employed in person (as requested by ToR) but there was a change in strategy. This has to be clearly motivated. How does that decrease quality of data collected and what did you do to counteract that?*<br><br>*Then you should have a section called **Data Sources** where you state these data sources. You should also assess the reliability of your data sources here. Were quantitative data sources (i.e MRV data) sound and robust?*<br>*Data sources are not consistently quoted even though these documents are listed in the bibliography. Referring to these documents would strengthen the triangulation process.* | |
| *UNDP* | *13* | *6/284* | *Scope and Methodology* | *With reference to the word "beneficiaries": Including whom? Forest villagers who installed Solar PV panels, land based cooperative members?*<br>*Better state who they are.* | *Done* |
| *UNDP* | *14* | *6/287-288* | *Scope and Methodology* | *Annexes part needs to be revised as per ToR and GEF Guidelines. Then, all appendices references will need to be revised throughout the document.* | *Done* |
| *UNDP* | *15* | *7/293-298* | *Scope and Methodology* | *We have two more dimension which should be analyzed here and elsewhere, please check the ToR for all OECD DAC criteria Cross-cutting issues and gender equality and women's empowerment:*<br>*Impact* | *Done* |
| *UNDP* | *16* | *7/301* | *Scope and Methodology* | *We need a ranking for cross-cutting.*<br>*We also have impact.* | *Done* |
| *UNDP* | *17* | *11/333* | *Data Collection and Analysis* | *Sorry for cross posting but this came up in the preceding page and also here.* | *Done* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| | | | | *There should be a separate Methodology section which should explain which methods you used including, qualitative, quantitative or mixed-method and how they were carried out. You should also explain how you used Gender and Human Rights-Based Approach" as it is part of the methodology of all UNDP evaluations.*<br>*You should also explain your methodological limitations here. What were your limitations in using quantitative/qualitative/mixed-method research?*<br>*i.e How did you bypass social desirability bias in qualitative method? Were quantitative data sources (i.e MRV data) sound and robust?*<br><br>*You should also explain any changes to the evaluation approach or limitations in implementation. For instance, qualitative method was to be employed in person (as requested by ToR) but there was a change in strategy. This has to be clearly motivated. How does that decrease quality of data collected and what did you do to counteract that?*<br><br>*Then you should have this section called Data Sources where you state these data sources. You should also assess the reliability of your data sources here. How did you bypass social desirability bias? Were quantitative data sources (i.e MRV data) sound and robust?*<br>*Data sources are not consistently quoted even though these documents are listed in the bibliography. Referring to these documents would strengthen the triangulation process.* | |
| *UNDP* | *18* | *12/346-350* | *Data Collection and Analysis* | *Again Methodology and Data Sources should be one after another. They are tied but not exactly the same thing as explained above. Here for instance, you dwell on the Methodology part. But needs improvement as explained in previous comments.* | *Done* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| UNDP | 19 | 15/370 | Limitations | If these are your methodological limitations please put them as a sub-heading under Methodology section. They are not separate limitations but part of Methodology. | Done |
| UNDP | 20 | 16/389-390 | Project Start and Duration | Operational closure date is 28-Feb-2023. Please correct. | Done |
| UNDP | 21 | 17/394 | Development Context | In relation to the "Central Asia" expression: Caucasus actually. No Central Asia gas is transported to Türkiye. Pipeline gas from Russia, Azerbaijan, and Iran and LNG from the US, Algeria & Qatar. | Done |
| UNDP | 22 | 18/401-415 | Development Context | Türkiye is ranking 5th in Europe and 12th in the world in RE installed capacity. In 2022, RE share in electricity generation reached 54%. In the last two years, 97% of additional installed capacity came from renewables with the installed capacity reaching 102,208 MW in September 2022. | As noted. |
| UNDP | 23 | 20/434 | Problems that the ORKÖY-PV Project sought to address | In relation to the "3 kW" expression: 1kW to 10kW in May 2019 Legislation and 1kW to 20kW under the revision made in 2022. | Done |
| UNDP | 24 | 21/442 | Problems that the ORKÖY-PV Project sought to address | Please use "remuneration" as a term for net metering payments made to beneficiaries for surplus electricity generation. FiT is the term used in Turkish legislation for electricity purchase guarantee under RE Support Scheme. | Done |
| UNDP | 25 | 23/469 | Theory of Change | Why "However"?<br>What is the utility of discussing indicators in the ToC?<br>Instead of just putting the diagram, it may be good to assess the quality of ToC itself with a few words. Otherwise we are just repeating the ToC diagram of the ProDoc. This does not contain any analysis of the ToC.<br><br>According to ToR, indicators are discussed under:<br>4.Findings<br>Analysis of Results Framework: project logic and strategy, indicators | Re-written |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| UNDP | 26 | 26/505 | Main Stakeholders and Key Partners | Could we add a few sentences where relevant to explain the role of the main stakeholders and their involvement in the project? Here their position in the energy ecosystem is explained but apart from MoFA we do not know their role in this project. Project team may aid you in this, maybe add here remarks as to what each stakeholder did/or did not do in this project. | Edits done |
| UNDP | 27 | 26/521 | Main Stakeholders and Key Partners | As to the role of MoENR: and the measurement of reduction in carbon emissions installed by ORKOY? | Done |
| UNDP | 28 | 27/544 | Main Stakeholders and Key Partners | Can we use a more gender-neutral term such as Head of Village? | Done |
| UNDP | 29 | 28/546-554 | Main Stakeholders and Key Partners | Also, the affordability of private bank loans is low given the prolonged payback period in the presence of interest rates with no grant blending. Especially after the pandemic, costs for installation of PV systems increased drastically emphasizing the role of grant blending even further. | This information is a finding and is moved to Para 93 |
| UNDP | 30 | 31/570 | Findings | The evaluation could have cited more information from interview sources or other data sources. Also, where the report has provided quantitative results, it could have cited the source of these (for example from MRV or government statistics, or elsewhere). The report can also comment on the constraints in accessing some data (i.e sex disaggregated data or the reliability of MRV system and how that affects your findings, conclusions). | Addressed these points |
| UNDP | 31 | 36/653 | Analysis of Project Results Framework for the ORKÖY-PV Project | Table 6 only includes analysis of outcome indicators. Our quality assessors will give a "not satisfactory" answer since not all indicators in the logical framework are assessed individually, with final achievements noted. Appendix F only includes blank RRF with no final achievements.<br>Table 6 can include all output indicators to be comprehensive. Under Effectiveness, a more thorough assessment regarding indicator achievements both at outcome and output level can be made rather than simply stating satisfactory. | Done |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| *UNDP* | *32* | *37/655* | *Risks and Assumptions* | *Risks are stated but not discussed in the report.*<br>*How powerful is this initial risk log? Did it anticipate everything or was it too simplistic? Since we are in the findings section simply stating the risks would not be enough.*<br><br>*While here the analysis should include how you see the quality of the initial risk log, in the Project implementation section, you should focus on how well it was maintained and updated in the light of emerging events.* | *Done* |
| *UNDP* | *33* | *39/683* | *Lessons from Other Relevant Projects Incorporated into ORKÖY-PV Project Design* | *Share of private sector in electricity generation reached 84% in 2021.* | *Done* |
| *UNDP* | *34* | *41/696* | *Linkages between ORKÖY-PV Project and other interventions in the sector* | *Please state your source for "there is no linkages…"*<br>*Please clarify what is meant by the other interventions. Other development projects? Government interventions?* | *Phrase deleted and replaced with info you provided* |
| *UNDP* | *35* | *43/710* | *Society and Environmental Safeguards* | *SESP risks should be moved to and analyzed under*<br><br>*3.2 Project Implementation*<br>*Risk Management, including Social and Environmental Standards (Safeguards)*<br><br>*It should not be under here.* | I am leaving this here. It is a part of the Project design. |
| *UNDP* | *36* | *43/711* | *Society and Environmental Safeguards* | *We have one more risk in SESP form, could you elaborate that too: Potential risk to health and safety of individuals (PV plant maintenance and security staff*<br><br>*By the way, you can talk about SESP risks under the general heading of Risks and Assumptions as they are also part of Project risk log to ensure holistic explanation.* | *Done* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| UNDP | 37 | 44/725 | Project Implementation | An assessment on "Risk Management, including Social and Environmental Standards (Safeguards)" section is missing under Project Implementation chapter. The section is put above, whereas it should be the last sub-section of Project implementation section according to ToR. Should be moved there. | Done |
| UNDP | 38 | 44/750-754 | Project Implementation | You do not have to talk about individual activities here, only major milestones that affected the course of the project should be highlighted. | Phrases deleted |
| UNDP | 39 | 44/759 | Project Implementation | Also Sarıgül Village, near Elazig Province has agreed to implement roof-top PVs. We can say 2 cancelled land-based PV systems turned to roof-top PVs. | Done |
| UNDP | 40 | 44/767 | Project Implementation | And grid connected by February 2020 | Done |
| UNDP | 41 | 46-47/782-803 | Adaptive Management | This part is not about Adaptive Management but about "Actual stakeholder participation and partnership arrangements"<br>These are information about how the project is managed with partners and not how project team adapted to changing circumstances, suggest moving it there. | I'm leaving it here as preamble to adaptive management |
| UNDP | 42 | 48/807-815 | Adaptive Management | These should be given more space to explain better to outside audiences. It is too short. Someone not familiar with the project would not understand what these truly entail. Suggest adding a bit more explanation to illustrate the nature of adaptive management for each. | Done |
| UNDP | 43 | 50/823-826 | Actual Stakeholder Participation Partnership Arrangements | I think we need examples from your field work or interviews to illustrate how. What were their involvement and contribution? We would be happy to hear a few anonymous quotes from your interviewees at times to see how you triangulate data to arrive at your conclusions. | Done |
| UNDP | 44 | 51/839 | Project Finance | Please fill in the spending rate against intended expenditures. | Done |
| UNDP | 45 | 52/847 | Project Finance | Please fill in actual co-financing realized. | Done |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| UNDP | 46 | 53/856 | Project Finance | Please refer to the Excel sheets provided by the Project Field Coordinator. Rather than looking only component by component you need a more detailed analysis of budget realizations as opposed to budgetary targets.<br>If the Table becomes too long, you can keep the detailed one as an annex and keep the shorter version here but we have to be sure that the analysis includes major spending items (i.e Human resources, soft loan data etc..)<br><br>A thorough budget analysis as requested in the TOR is not made available under "Efficiency". Suggest providing a separate budget overview and analysis within Efficiency section. | I am keeping this table. This is the way I have presented the budgets for all my evaluations. I don't know if more detail that you requested will make this any more of an effective presentation. Table 3 provides where all the money has been spent. |
| UNDP | 47 | 53/856-865 | Project Finance | Please refer to the Excel sheets provided by the Project Field Coordinator and fill in empty cells. | Done |
| UNDP | 48 | 54/867 | M&E Design at Entry and Implementation | There is no mention of the quality or availability of data, nor of disaggregated data availability<br><br>How sophisticated is MRV system and can it function sustainably? Does field personnel have the capacity to use MRV without issues or do they need capacity building. Your logframe identified some issues with MRV but it is not explained here. | Addressed |
| UNDP | 49 | 56/881-883 | M&E Design at Entry and Implementation | Annual work plans, budgets and PIRs were prepared by PIU's Technical Sub Unit (not PMU) and not submitted to PSC, only submitted to UNDP for approval. Evidence is the PIR workflow in PIMS+ System | Done |
| UNDP | 50 | 58/892 | Performance of Implementing and Executing Entities | Please add "Risk Management, including Social and Environmental Standards (Safeguards)" after this section. Suggest talking about which risks were not anticipated but materialized (i.e change in legislation) and also which risks (if any) in the risk log actually became issues by materializing and how good was the mitigation. You can say a few words about | Done |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
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| | | | | *the soundness of risk anticipation and risk management of the team based on your data sources and field work.*<br>*Please include findings/conclusions on risk management at the very end of Project Implementation as well* | |
| *UNDP* | *51* | *58-60/893-905* | *Performance of Implementing and Executing Entities* | *Again a few remarks from your field work or other data sources to show how you triangulated data and arrived at this conclusion.* | *Done* |
| *UNDP* | *52* | *61/914* | *Project Results and Impacts* | *Also cross-cutting* | *Done* |
| *UNDP* | *53* | *61/915* | *Project Results and Impacts* | *Cross-cutting* | *Done* |
| *UNDP* | *54* | *63/941* | *Progress towards goal and objectives* | *Please include output indicators for a full appraisal of RRF. In relation to the status of the target achieved: Please indicate source of your data. Please use the same shade of green in the table in line with the coding under paragraph 61.*<br><br>*Cumulative total electricity generation reached 3,238,210 as of 31.12.2022*<br><br>*No of people living in forest villages reached 4863 as of 31.12.2022* | *Done* |
| *UNDP* | *55* | *66/967-968* | *Progress towards goal and objectives* | *551 houses in 2021 and 684 houses in 2022. Total co-financed houses are 1236 as of 31.12.2022.*<br><br>*1252 kWp in 2021, 1589kWp in 2022. Total capacity is 2841 kWp as of 31.12.2022* | *Done* |
| *UNDP* | *56* | *66/970* | *Progress towards goal and objectives* | *Not 4684 but 5236 households for 2021-23 period:*<br>*for year 2021 - 551 Houses (Co-Financed)*<br>*for year 2022 - 684 Houses (Co-Financed)*<br>*for year 2023 GDF plans for PV - 4000 Houses (GDF Finance only)* | *Done* |
| *UNDP* | *57* | *69/995* | *Progress towards goal and objectives* | *On what exactly? (capacity building activities)* | *Done* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| UNDP | 58 | 70/1001 | Progress towards goal and objectives | Please remove 80% GEF 20% GDF and instead write 100% GEF grant. | Done |
| UNDP | 59 | 70/1006 | Progress towards goal and objectives | Replace "forest villagers" with "households". | Done |
| UNDP | 60 | 71/1013 | Progress towards goal and objectives | "Central North" instead of "north". | Done |
| UNDP | 61 | 72/1017-1018 | Progress towards goal and objectives | In relation to your clarification request: By-Law on Unlicensed Electricity Generation in the Electricity Market. Rooftop PV is considered under unlicensed generation. | Done |
| UNDP | 62 | 77/1071 | Progress towards goal and objectives | In relation to your clarification request: Cooperative establishment expenditures were financed by villagers. Land based PV implementation was covered from the project, including all approval fees, as those fees were in the scope of the contractor | Done |
| UNDP | 63 | 80/1108 | Progress towards goal and objectives | If this information is based on your field work, please confirm the size of your sample and explain your limitations on generalizability. | Done |
| UNDP | 64 | 83/1134-1135 | Progress towards goal and objectives | US$1.1 million ended up US$2.294 Million as of 31.12.2022 2572 kWp ended up 2841kWp as of 31.12.2022 | Done |
| UNDP | 65 | 87/1167 | Progress towards goal and objectives | "They": Who? | Done |
| UNDP | 66 | 91/1210 | Progress towards goal and objectives | Interest rates are 30-35% nowadays | Done |
| UNDP | 67 | 91/1209-1216 | Progress towards goal and objectives | Please clarify what role could the project play in respect to mobilising an interest from financial entities. If the interest rates are high, the banks could have partnered with IFIs to bring the cost down through on-lending. Did the project undertake a role of a facilitator - were there any efforts in this context? This is important, as such effort could have yielded significant impact on the sector. | Done |
| UNDP | 68 | 92/1227-1228 | Progress towards goal and objectives | Correct. Did the project make any efforts in the policy space to advance adoption or at least preparation of relevant legislation in the agrivoltaics space? | I don't know |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| UNDP | 69 | 92/1230 | Progress towards goal and objectives | In which sense a hard scenario to find? | Its self-explanatory |
| UNDP | 70 | 93/1231 | Progress towards goal and objectives | Under ORKOY project, an MRV system was developed to track CO2 emissions avoided and renewable energy generated. However, it has only been used manually to calculate and track the energy production and GHG emission reduction of the implemented pilot projects.<br><br>Implementing partner is planning to incorporate the system into their Forest Management System (ORBİS) to be able to regularly track the progress in emission reductions and renewable energy generation at the forest villagers' households under their provincial administrations. Initial contacts were made with the IT department of the implementing partner to explore possibilities. Once incorporated, a sustainable tracking will be ensured by UNDP over solar PV interventions implemented not only within pilot component but also beyond the project in the grant blended loan program to be executed by ORKOY department for forest villagers. However, the project has extended its duration to scale up the number of beneficiary households now that the project has eliminated the permit-related barriers and is ready to take off the scale-up even faster. All efforts are put by the IP into installing as many rooftop PV systems as possible. An online MRV system is not expected to be achieved before the end of the project duration. | Done |
| UNDP | 71 | 94/1240 | Progress towards goal and objectives | On which basis can this claim/statement substantiated? | Done |
| UNDP | 72 | 95/1243 | Relevance | Does the evaluation draw linkages to the UNDP country programme strategy and/ or UNDAF/ UNSDCF?<br><br>Not at the moment. This is missing now. | Done |
| UNDP | 73 | 95/1244-1253 | Relevance | Your OECD DAC sections are too short. Our QA scorers will rate them unsatisfactory. Before explaining your rating, we have to | Edits provided |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
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| | | | | *make sure that you answer each EQ for that section. For Relevance we had 7 questions according to the Evaluation Matrix of your Inception Report. I can see in various sections of the report that at least two of them have been answered, but we still need referring to these explanations here as well:*<br><br>*Under 3.1.3 and 3.15 you give the answers to*<br>*To what extent were lessons learned from other relevant projects considered in the design?*<br>*To what extent does the Project create synergy/linkages with other projects and interventions in the country?*<br><br>*However without answering all the EQs of that section, your rankings will be seen as unsubstantiated by the QA scorers. We need all EQs explicitly answered here before your rating. Your rating should be a natural extension of your answers to those EQs.*<br>*Also very important here is to answer the following question which is missing in the evaluation at the moment:*<br><br>*Does the evaluation draw linkages to the SDGs and relevant targets and indicators for the area being evaluated?* | |
| *UNDP* | *74* | *97/1258* | *Effectiveness* | *Again there are 11 EQs for Effectiveness Section of your Evaluation Matrix. While some of them have been indirectly answered elsewhere and also the analysis you provided for outcomes, still the Evaluation will receive a poor rating if these EQs are not explicitly and adequately answered here.* | *Edits provided* |
| *UNDP* | *75* | *97/1266-1267* | *Effectiveness* | *Same as 93/1231 comment.* | *Edits provided* |
| *UNDP* | *76* | *98/1269* | *Efficiency* | *Same as 97/1258 comment. Need to answer all EQs to justify the grading.* | *Edits provided* |
| *UNDP* | *77* | *100/1291-1292* | *Overall Project Outcome* | *What do you exactly mean by "the Evaluator confirms the existence of evidence that the Project has achieved its* | *Edits provided* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
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| | | | | *outcomes but not its objective"? Could you unpack and substantiate your claim with evidence here?*<br><br>*Here an indicator analysis should also be stated (% of indicators achieved/exceeded both at outcome and output level). Some outcomes were red and some were green so saying "achieved all its outcomes" may be a sweeping statement. Could you nuance your analysis based on the logical framework?* | |
| *UNDP* | *78* | *100/1292* | *Overall Project Outcome* | *What do you mean by "specific achievements"? Not clear.* | *Edits provided* |
| *UNDP* | *79* | *101/1295* | *Sustainability of Project Outcomes* | *Again while your table below gives a summary picture, QA scorers will look for answers to EQ such as:*<br><br>*To what extent does this UNDP intervention have a well-designed and well-planned exit strategy?*<br><br>*What could be done to strengthen exit strategies and sustainability in order to support forest villagers?*<br>*Could you go over your EQs one by one for an exhaustive analysis?* | *Edits provided* |
| *UNDP* | *80* | *102/1314* | *Sustainability of Project Outcomes* | *Same as 91/1210 comment.* | *Edits provided* |
| *UNDP* | *81* | *102/1320* | *Sustainability of Project Outcomes* | *Is recycling for PVs considered for environmental factors under Actual Outcome 2.1?* | *Edit provided* |
| *UNDP* | | *103/1321* | *Country Ownership* | *I think what you state here is the same text with relevance. It should be different. The project may be relevant but country ownership could still be lacking.*<br>*In which ways do you claim that country ownership will continue? What evidence from your field work confirms that? Again we need references to your field work from time to time.* | *Done* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
|---|---|---|---|---|---|
| UNDP | 82 | 104/1330 | Gender equality and women's empowerment | The evaluation does not include specific criteria on gender equality and economic empowerment and human rights, which are treated as cross-cutting issues according to the ToR and inception report. The evaluation does not comment on the availability of sex-disaggregated data. | Edits provided |
| UNDP | 83 | 105/1340-1348 | Gender equality and women's empowerment | What did your field work say about gender aspect? | Edits provided |
| UNDP | 84 | 106/1350 | Cross cutting issues | This section does not answer the EQs as stated in your inception report. Please revise the text strictly according to your EQs.<br>To what extent has the Project contributed to "leave no one behind agenda" (including disabled, elderly, youth, refugees etc.)?<br>To what extent have gender equality and the empowerment of women been addressed in the design, implementation and monitoring of the project?<br>Is the gender marker assigned to this project representative of reality?<br>To what extent has the project promoted positive changes in gender equality and the empowerment of women? Did any unintended effects emerge for women, men or vulnerable groups? | Done |
| UNDP | 85 | 109/1388 | Progress to impact | You also had an impact section in your ToR which asks the following EQ. Please ensure they are answered:<br><br>To what extent has the project provided an enabling environment and basis for deployment of solar PV installations in rural and urban areas?<br><br>To what extent has the project established a sustainable financing mechanism for renewable energy especially for poorer segments of the society? To what extent is the financing | Done |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
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| | | | | *model piloted by the project replicable and up-scalable for other settings and target groups?* | |
| *UNDP* | *86* | *112/1432* | *Main Findings* | *Both findings and conclusions should include one observation on LNOB/Gender dimension.* | *Done* |
| *UNDP* | *87* | *118/1492-1494* | *Recommendations* | *Replace "continue analyzing options…" with "present the options…". In order to enable UNDP and GDF to formulate an actionable management response, we suggest specifying the recommended action. For instance, "UNDP may hold a meeting with IFIs to inform them about the outcomes of the project etc."* | *Done* |
| *UNDP* | *88* | *118/1502* | *Recommendations* | *In response to your clarification request regarding AfD project: GDF is negotiating sourcing from alternative financiers including AfD for the continuation of the soft loan programme. Additional information will be provided to you.* | *Done* |
| *UNDP* | *89* | *119/1504-1506* | *Recommendations* | *The entities cannot be other than the stakeholders of this project. This recommendation exceeds the duties of UNDP and GDF solely. MoEUCC, MoENR and MoFA should be involved in discussions. However, MoFA could be addressed as the Implementing Partner whereas MoENR is involved in the project as a stakeholder. MoEUCC is not involved in this project. GDF and UNDP can initiate these discussions with the above entities you mention. If recommendation is sound for the team, the correct counterpart can be described in our management response as well. Such as "UNDP will initiate discussions with A,B,C who are in charge of ….". We suggest rephrasing the recommendation as "Initiate discussions with relevant stakeholders in regard to regulations to expand* ***unlicensed*** *solar PV and other forms of renewable energy to other applications. These applications may include:"* | *As noted with edits made.* |
| *UNDP* | *90* | *119/1516* | *Recommendations* | *Instead of "where cooperatives need to be formed", insert "with appropriate models".* | *Done* |
| *UNDP* | *91* | *120/1524* | *Recommendations* | *MoEUCC is not involved in the project as a stakeholder. Thus, a recommendation involving MoEUCC cannot be addressed with* | *Edits made.* |

| Institution/ Organization | # | Para #/ Comment location (line #) | Chapter/ Section | Comment/Feedback on draft TE report | TE IC response and actions taken |
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| | | | | *a management action. Turkey has a well-established WEEE management regulation that was recently updated by the end of 2022 in line with EU WEEE and ROHS Directives. Under this regulation, it is obliged for solar PV owners to manage their PV wastes in agreement with a licensed WEEE treatment facility that accepts the defined waste code for the PV among 144 licensed WEEE Treatment Facilities in Turkey. Implementation of WEEE directive in Turkey lies under the custody of Waste Management Department of Ministry of Environment, Urbanization and Climate Change.*<br>*The WEEE regulation can be accessed via https://webdosya.csb.gov.tr/db/cygm/icerikler/yon-32055aeee-20230102154227.pdf*<br>*Please re-evaluate this recommendation in the light of the information provided above.* | |
| *UNDP* | *92* | *122/1550* | *Lessons Learned* | *One lesson learned on Gender and LNOB is needed.* | *Done* |
| *UNDP* | *93* | *124/1567-1568* | *Lessons Learned* | *In response to your question on GUNDER report:*<br>*Yes, it was written By GUNDER and there are other reports such as:*<br>** Land Based PV Survey Reports*<br>** Market Research*<br>** Pilot Land Base PV Plant Feasibility*<br>** Sample Land Based PV Plant Design*<br>** Health and Safety Report during Implementations*<br>** PV installations'' progress reports*<br>** Training documents* | *Done* |
| *GDF* | *94* | *20/424-426* | *Problems that the ORKÖY-PV Project sought to address* | *Please rephrase to avoid misunderstandings that might arise regarding the impoverishment and government support. One suggestion is to rephrase as "The target of the ORKÖY-PV Project, Türkiye's forest villages, constitute the lowest income group in the country which need government support to mitigate population losses due to the scarcity of economic opportunities for their residents."* | *Done* |

# APPENDIX I - EVALUATION QUESTIONNAIRE

*These questions are designed for Implementing and Project partners*:

1. Has the Project been effective at the national levels in influencing the installation of the solar PV in forest villages?

2. Were you involved in revising the changes in the plans for the Project (around the MTR)?

3. What were some of the positive or negative, intended or unintended, changes brought about during project implementation? Were there delays in the delivery of some of the outputs?

4. What were the challenges that enhanced or impeded Project performance? Were alternative approaches considered in overcoming these challenges? Were the issues procurement related, COVID-related, on-the-ground related?

5. Have monitoring and evaluation systems of the Project helped to ensure that activities and outputs were managed efficiently and effectively?

6. With respect to awareness raising, have newsletters and other media informed the general public of Project activities?

7. What activities does your organization focus on? Does it empower women or does it ensure everyone is brought into Project activities considering the number of poor people in the population?

8. After the Project, what are the next steps to providing continuing support to forest villages and their transition to RE? Does this include appropriate institutional capacities (systems, structures, staff, expertise, etc.) to be in place after the Project's closure date?

9. What impact has the Project had on forest villages and solar PV installations? What has been the impact on the livelihoods of forest villagers, men and women?

10. What has been the impact of the Project on the beneficiaries? How has the Project made a difference in men's and women's lives?

11. Do you see any barriers and risks that may prevent further progress to the long-term impact of forest villagers and their transition to RE?

12. Do you see any real change in gender equality in the context of decision-making power, and division of labor?

13. What are the most urgent actions to be taken in view that the Project is ending?

*These questions are designed for beneficiary stakeholders:*

1. How did you hear about the ORKÖY-PV Project? Did you have newsletters or other media to informed you of the Project?

2. What did you know about renewable energy prior to your RE installation?

3. What attracted you to RE?

4. How did you arrange your financing for the RE installation?

5. What were the challenges during the installation of the RE system? Were there delays in the installation of the solar PV system, and were alternative approaches considered in overcoming these challenges? Were the issues procurement related, COVID-related, or on-the-ground related?

6. Does the solar pv installation have too many maintenance issues as opposed to what they were using before? Does it require constant repairs or not? Can they afford these repairs?

7. For males: Are you the member of the family who is applying to these credits? With the installation of the solar PV in your village, how has the technology impacted you? Any benefits? Are you seeing the reduction of electricity bills? Are you able to do other things that you were not able to do before you installed RE?

8. For women: With the installation of the solar PV in your village, how has the technology benefitted you? What impact has the new RE technology had on you? Are you seeing the reduction of electricity bills? Are you able to do other things that you were not able to do before you installed RE? What are some of the changes in your life during the switch to RE? Did it bring any changes in terms of your use of domestic time?

9. What do you think of cooperatives for renewable energy? Does it provide economic relief to its cooperative members and contribute to the general morale and attitude in the village about renewable energy? How should the cooperative be managed? What is the involvement of women in the cooperative?

10. For land-based solar PV stakeholders: Is there an advantage to land-based solar installations versus roof-top solar installations?

# APPENDIX J - EVALUATION CONSULTANT AGREEMENT FORM

**Evaluators:**

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings, and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

**Evaluation Consultant Agreement Form**[50]

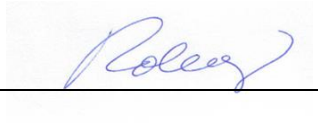
**Agreement to abide by the Code of Conduct for Evaluation in the UN System**

**Name of Consultant:** __Roland Wong_____

**Name of Consultancy Organization** (where relevant)**:** _____

**I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.**

Signed at *Surrey, BC, Canada* on *26 February 2023*



[50] www.unevaluation.org/unegcodeofconduct

# APPENDIX K - CLEARANCE FORM

**Terminal Evaluation Report for (*Sustainable Energy Financing Mechanism for Solar PV in Forest Villages in Turkey*, *UNDP PIMS ID: 5323*) Reviewed and Cleared By:**

**Commissioning Unit (M&E Focal Point)**

Name: Öykü Uluçay

Signature: DocuSigned by: D52DC47A255041F...

Date: 24-Feb-2023

**Regional Technical Advisor (Nature, Climate and Energy)**

Name: Jana Koperniech

Signature: DocuSigned by: ED5C241FBA2C457...

Date: _____